



Attorney Docket No. CL001163  
Application Serial No. 09/804,472  
Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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1 GGTCCAGTT GCTTCAGCGA GTCGAAC TAC AGTTTTAACC TCATCAAATA  
51 GGCATCTCC CTTGCTTGCT GCAGCAGGGA TGGGAAGAAAT GTCAC TTTCT  
TTTAAAGCTA GCAAGCTTTT TCTTTTCTT TTTCTTCTTC TATTTAAAAA  
151 TTCTAATCAT GGATGCTTCT TCCGACCCCT ATTTGCCTTA TGACGGGGGA  
201 GGAGACAATA TTCCCTGAG GGAATTACAT AAAAGAGGAA CTCATTATAC  
251 AATGACAAAT GGAGGCAGCA TTAACAGTTC TACACATTTA CTGGATCTTT  
301 TGGATGAACC AATTCCAGGT GTTGGTACAT ATGATGATTT CCATACTATT  
351 GATTGGGTGC GAGAAAAATG TAAAGACAGA GAAAGGCATA GACGGATCAA  
401 CAGCAAAAAG AAAGAATCAG CATGGGAAAT GACAAAAAGT TTGTATGATG  
451 CGTGGTCAGG ATGGCTAGTA GTAACACTAA CAGGATTGGC ATCAGGGGCA  
501 CTGGCCGGAT TAATAGACAT TGCTGCCGAT TGGATGACTG ACCTAAAGGA  
551 GGGCATTTGC TTAGTGCGT TGTGGTACAA CCACGAACAT TGCTGTGGG  
601 GATCTAATGA AACAACATTT GAAGAGAGGG ATAAATGTCC ACAGTGAAAA  
651 ACATGGGCAG AATTAATCAT AGGTCAAGCA GAGGGTCCTG GTTCTTATAT  
701 CATGAAC TAC ATAATGTACA TCTTCTGGGC CTTGAGTTTT GCCTTTCTTG  
751 CAGTTTCCCT GGTAAGGTA TTTGCTCCAT ATGCCTGTGG CTCTGGAATT  
801 CCAGAGATTA AAATAATTTT AAGTGGATTC ATCATCAGAG GTTACTTGGG  
851 AAAATGGACT TTAATGATTA AAACCATCAG ATTAGTCTCG GCTGTGGCAT  
901 CAGGTTTGAG TTTAGGAAAA GAAGGTCCCC TGGTACATGT TGCCTGTGTC  
951 TGCGGAAATA TCTTTTCCTA CCTCTTTCCA AAGTATAGCA CAAACGAAGC  
1001 TAAAAAAGG GAGGTGCTAT CAGCTGCCTC AGCTGCAGGG GTTCTGTAG  
1051 CTTTTGGTGC ACCAATTGGA GGAGTTCTTT TTAGCCTGGA AGAGGTTAGC  
1101 TATTATTTTC CTCTCAAAAC TTTATGGAGA TCATTTTTTG CTGCTTTAGT  
1151 GGCTGCATTT GTTTTGAGGT CCATCAATCC ATTTGGTAAC AGCCGCTCTG  
1201 TCCTTTTTTA TGTGGAGTAT CATAACCAT GGTACCTTTT TGAAGTGT  
1251 CCTTTTATTC TTCTAGGGGT ATTTGGAGGG CTTTGGGGAG CCTTTTTCAT  
1301 TAGGGCAAAT ATTGCCTGGT GTCGTCGACG CAAGTCCACG AAATTTGGAA  
1351 AGTATCCCGT TCTGGAAGTC ATTATTGTTG CAGCCATTAC TGCTGTGATA  
1401 GCCTTCCCTA ATCCATACAC TAGGCTAAAC ACCAGTGAAC TGATCAAAGA  
1451 GCTTTTTACA GACTGTGGTC CCCTGGAATC CTCTTCTCTT TGTGACTACA  
1501 GAAATGACAT GAATGCCAGT AAAATTGTCG ATGACATGCC TGATCGTCCA  
1551 GCAGGCATTG GAGTATATTC AGCTATATGG CAGTTATGCC TGGCACTCAT  
1601 ATTTAAAATC ATAATGACAG TATTCAC TTT TGGCATCAAG GTTCCATCAG  
1651 GCTTGTTTCAT CCCCAGCATG GCCATTGGAG CGATCGCAGG AAGGATTGTG  
1701 GGGATTGCGG TGGAGCAGCT TGCCTACTAT CACCACGACT GGTTTATCTT  
1751 TAAGGAGTGG TGTGAGGTGG GGGCTGATTG CATTACACCT GGCCTTTATG  
1801 CCATGGTTGG TGCTGCTGCA TGCTTAGGTG GTGTGACAAG AATGACTGTC  
1851 TCCCTGGTGG TTATTGTTT TGAGCTTACT GGAGGCTTGG AATATATGTT  
1901 TCCCTTTATG GCTGCAGTCA TGACCAGTAA ATGGGTTGGA GATGCCTTTG  
1951 GCAGGGAAGG CATTATGAA GCACACATCC GATTAAATGG ATACCCCTTC  
2001 TTGGATGCAA AAGAAGAAAT CACTCATACC ACCCTGGCTG CTGACGTTAT  
2051 GAGACCTCGA AGGAATGATC CTCCCTTAGC TGTCCTGACA CAGGACAATA  
2101 TGACAGTGGA TGATATAGAA AACATGATTA ATGAAACCAG CTACAATGGA  
2151 TTTCTGTCA TAATGTCAA AGAATCTCAG AGATTAGTGG GATTTGCCCT  
2201 CAGAAGAGAC CTGACAAATG CAATAGAAAG TGCCAGGAAA AAACAAGAAG  
2251 GTATCGTTGG CAGTTCTCGG GTGTGTTTGG CACAGCACAC CCCATCTCTT  
2301 CCAGCAGAAA GTCCTCGGCC ATTGAAGCTT CGAAGCATTC TTGACATGAG  
2351 CCCTTTTACA GTGACAGACC ACACCCCAAT GGAGATTGTG GTGGATATTT  
2401 TCCGAAAGCT GGGACTGAGG CAGTGCCTTG TAACTCACA TGGGCGCCTC  
2451 CTTGGCATT TAACAAAAA AGATATCCTC CGGCATATGG CCCAGACGGC  
2501 AAACCAAGAC CCCGCTTCAA TAATGTTCAA CTGAATCTCA CAGATGAGGA  
2551 GAGAGAAGAA ACGGAAGAGG AAGTTTATTT GTTGAATAGC ACAACTCTTT  
2601 AACCTGAGGG AGTCATCTAC TTTTTTTTCC TCCTTTACAA AAAAAGAAAG  
2651 GAAATATAAA AGCCGGGTTT TTGCAACATG GTTTGCAAAT AATGCTGGTG  
2701 GAATGGAGGA GTTGTGTTGG GAGGGAAGG AGAGAGAAGG AAAGGAGTGA  
2751 GGTATTTCCC GTCTAACAGA AAGCAGCGTA TCAACTCCTA TTGTTCTGCA  
2801 CTGGATGCAT TCAGCTGAGG ATGTGCCTGA TAGTGCAGG TTGCGCCTCA  
2851 ACAGAGATGA CAGCAGATC CTCGAGCACC TGGCCTGTTG CTCCAACATT  
2901 GCAAAGACAC ATTATCAGTC CCTATTTCTA GAGGGATTAC TTTGAATTGA  
2951 GCCATCTATA AAAGTGAAG GTCTTGCCCT TTTTTTTAAT CAAAAGTGT  
3001 CTGTTTAAAT CATGAATTGT ATAGTTAAGC ATTACCTTTC TACATTCCAG

FIGURE 1A



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051 AAGAGCCTTT ATTTCTCTCT CTCTCTCTCT CTCTCTCTCT CTCTCTACTG  
3101 AGCTGTAACA AAGCCTCTTT AAATCGGTGT ATCCTTTTGA AGCAGTCCTT  
3151 TCTCATATTG AGATGTACTG TGATTTTACT GAGGTTTCAT CACAAGAAGG  
3201 GAGTGTCTTCT TGTGCCATTA ACCATGTAGT TTGTACCATC ACTAAATGCT  
3251 TGGAACAGTA CACATGCACC ACAACAAAGG CTCATCAAAC AGGTAAAGTC  
3301 TCGAAGGAAG CGAGAACGAA ATCTCTCATT GTGTGCCGTG TGGCTCAAAA  
3351 CCGAAAACAA TGAAGCTTGG TTTTAAAGGA TAAAGTTTTC TTTTTTGTTT  
3401 TCCTCTCAGA CTTTATGGAT AATGTGACCG GGTCTTATGC AAATTTTCTA  
3451 TTTCTAAAAC TACTACTATG ATATACAAGT GCTGTTGAGC ATAATTAAAT  
3501 AAAATGCTGC TGCTTTGACA GTAAAGAGAA AAAAAAAAAA AAAAAAAAAA  
3551 AAAAAAAAAA AAAAAAAAAA AAAAAAAAAA AAAAAAAAAA AAAAAAAAAA  
3601 AAAAAAAAAA AAAAAAAAAA AAAAA (SEQ ID NO:1)

**FEATURES:**

5'UTR: 1-158  
Start Codon: 159  
Stop Codon: 2532  
3'UTR: 2535

FIGURE 1B



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**HOLOGOUS PROTEINS:**

**Top BLAST Hits:**

						Score	E
CRA	18000005109762	/altid=gi	2599548	/def=gb	AAB95161.1	(AF029...	1575 0.0
CRA	18000005109763	/altid=gi	2599550	/def=gb	AAB95162.1	(AF029...	1573 0.0
CRA	18000005227216	/altid=gi	4762023	/def=gb	AAD29440.1	AF14277...	1572 0.0
CRA	18000004989660	/altid=gi	4502869	/def=ref	NP_001820.1	chlo...	1570 0.0
CRA	18000005231972	/altid=gi	8134363	/def=sp	Q9R279	CLC3_CAVPO ...	1561 0.0
CRA	18000004989700	/altid=gi	6680948	/def=ref	NP_031737.1	chlo...	1560 0.0
CRA	18000004978791	/altid=gi	1705905	/def=sp	P51792	CLC3_RAT CH...	1560 0.0
CRA	1000685681515	/altid=gi	6634696	/def=emb	CAA71072.2	(Y0994...	1559 0.0
CRA	18000004989661	/altid=gi	1705903	/def=sp	P51790	CLC3_HUMAN ...	1558 0.0
CRA	18000005226296	/altid=gi	4753144	/def=gb	AAB88634.2	(U8346...	1556 0.0

**EST:**

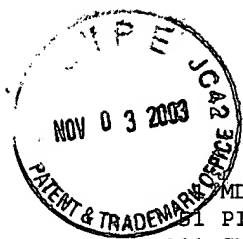
						Score	E
gi	10993825	/dataset=dbest	/taxon=96...			1562	0.0
gi	10934924	/dataset=dbest	/taxon=96...			1336	0.0
gi	10952244	/dataset=dbest	/taxon=96...			1251	0.0
gi	12383593	/dataset=dbest	/taxon=96...			1205	0.0
gi	6591096	/dataset=dbest	/taxon=9606 ...			1170	0.0
gi	10251711	/dataset=dbest	/taxon=96...			1104	0.0
gi	2321385	/dataset=dbest	/taxon=9606 ...			1045	0.0
gi	5594360	/dataset=dbest	/taxon=9606 ...			975	0.0
gi	5422132	/dataset=dbest	/taxon=9606 ...			965	0.0
gi	10327969	/dataset=dbest	/taxon=96...			963	0.0

**EXPRESSION INFORMATION FOR MODULATORY USE:**

**library source:**

gi	10993825	Neuronal precursor cells-teratocarcinoma
gi	10934924	Whole embryo-mainly head
gi	10952244	Neuronal precursor cells-teratocarcinoma
gi	12383593	Small intestine-duodenal adenocarcinoma
gi	6591096	Lung-small cell carcinoma
gi	10251711	Breast-normal
gi	2321385	Schwannoma tumor
gi	5594360	Brain-tumor
gi	5422132	Testis
gi	10327969	Lung-large cell carcinoma

FIGURE 1C



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MDASSDPYLP YDGGGDNIP L RELHKRGTHY TMTNGGSINS STHLLDLLDE  
51 PIPGVGTYYDD FHTIDWVREK CKDRERHRR I NSKKKESAW E MTKSLYDAWS  
101 GWLVVTLTGL ASGALAGLID IAADWMTDLK EGICLSALWY NHEQCCWGSN  
151 ETTFEERDKC PQWKTWAEI I GQAEGPSY IMNYIMYIFW ALSFAFLAVS  
201 LVKVFAFYAC GSGIPEIKTI LSGFIIRGYL GKWTLMIKTI TLVLAVASGL  
251 SLGKEGPLVH VACCCGNIFS YLFPKYSTNE AKKREVL SAA SAAGVSVAFG  
301 APIGGVLFSL EEVSYYFPLK TLWRSFFAAL VAAFVLRSIN PFGNSRLVLF  
351 YVEYHTPWYL FELFPFILLG VFGGLWGAF F IRANIAWCRR RKSTKFGKYP  
401 VLEVIIVAAI TAVIAFPNPY TRLNTSELIK ELFTDCGPLE SSSLCDYRND  
451 MNASKIVDDI PDRPAGIGVY SAIWQLCLAL IFKIIMTVFT FGIKVP SGLF  
501 IPSMAIGAIA GRIVGIAVEQ LAYYHHDWFI FKEWCEVGAD CITPGLYAMV  
551 GAAACLGAVT RMTVSLVVIV FELTGGLEYI VPLMAAVMTS KWVGDAFGRE  
601 GIYEAHIRLN GYPFLDAKEE FTHTTLAADV MRPRRNDPPL AVLTQDNMTV  
651 DDIENTMINET SYNGFPVIMS KESQRLVGFA LRRDLTIAIE SARKKQEGIV  
701 GSSRVCF AQH TP SPLPAESPR PLKLRSILDM SPFTVTDHTP MEIVVDIFRK  
751 LGLRQCLVTH NGRLLGIITK KDILRHMAQT ANQDPASIMF N (SEQ ID NO:2)

**FEATURES:**

**Functional domains and key regions:**

[1] PDOC00001 PS00001 ASN\_GLYCOSYLATION  
N-glycosylation site

Number of matches: 5

- 1 90-93 NETT (SEQ ID NO:7)
- 2 364-367 NTSE (SEQ ID NO:8)
- 3 392-395 NASK (SEQ ID NO:9)
- 4 587-590 NMTV (SEQ ID NO:10)
- 5 598-601 NETS (SEQ ID NO:11)

[2] PDOC00004 PS00004 CAMP\_PHOSPHO\_SITE  
cAMP- and cGMP-dependent protein kinase phosphorylation site

Number of matches: 3

- 1 24-27 KKES (SEQ ID NO:12)
- 2 330-333 RRKS (SEQ ID NO:13)
- 3 331-334 RKST (SEQ ID NO:14)

[3] PDOC00005 PS00005 PKC\_PHOSPHO\_SITE  
Protein kinase C phosphorylation site

Number of matches: 8

- 1 22-24 SKK
- 2 333-335 STK
- 3 529-531 TSK
- 4 613-615 SQR
- 5 631-633 SAR
- 6 642-644 SSR
- 7 658-660 SPR
- 8 709-711 TTK

FIGURE 2A



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[4] PDOC00006 PS00006 CK2\_PHOSPHO\_SITE  
Casein kinase II phosphorylation site

Number of matches: 13

1	27-30	SAWE (SEQ ID NO:15)
2	34-37	SLYD (SEQ ID NO:16)
3	92-95	TTFE (SEQ ID NO:17)
4	93-96	TFEE (SEQ ID NO:18)
5	105-108	TWAE (SEQ ID NO:19)
6	217-220	STNE (SEQ ID NO:20)
7	249-252	SLEE (SEQ ID NO:21)
8	383-386	SLCD (SEQ ID NO:22)
9	589-592	TVDD (SEQ ID NO:23)
10	666-669	SILD (SEQ ID NO:24)
11	674-677	TVTD (SEQ ID NO:25)
12	679-682	TPME (SEQ ID NO:26)
13	709-712	TKKD (SEQ ID NO:27)

[5] PDOC00008 PS00008 MYRISTYL  
N-myristoylation site

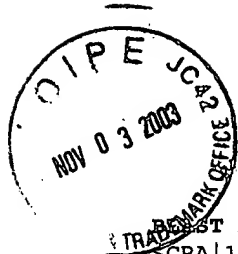
Number of matches: 18

1	49-54	GLASGA (SEQ ID NO:28)
2	53-58	GALAGL (SEQ ID NO:29)
3	72-77	GICLSA (SEQ ID NO:30)
4	88-93	GSNETT (SEQ ID NO:31)
5	189-194	GLSLGK (SEQ ID NO:32)
6	206-211	GNIFSY (SEQ ID NO:33)
7	234-239	GVSVAF (SEQ ID NO:34)
8	240-245	GAPIGG (SEQ ID NO:35)
9	245-250	GVLFSL (SEQ ID NO:36)
10	310-315	GVFGGL (SEQ ID NO:37)
11	313-318	GGLWGA (SEQ ID NO:38)
12	314-319	GLWGAF (SEQ ID NO:39)
13	408-413	GVYSAI (SEQ ID NO:40)
14	447-452	GAIAGR (SEQ ID NO:41)
15	491-496	GAAACL (SEQ ID NO:42)
16	541-546	GIYEAH (SEQ ID NO:43)
17	638-643	GIVGSS (SEQ ID NO:44)
18	692-697	GLRQCL (SEQ ID NO:45)

Membrane spanning structure and domains:

Helix	Begin	End	Score	Certainty
1	99	119	1.810	Certain
2	182	202	2.131	Certain
3	233	253	1.398	Certain
4	256	276	1.019	Certain
5	290	310	1.770	Certain
6	321	341	0.797	Putative
7	361	381	2.093	Certain
8	400	420	1.539	Certain
9	473	493	1.739	Certain
10	496	516	1.218	Certain
11	540	560	1.568	Certain
12	570	590	0.975	Putative

FIGURE 2B



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FAST Alignment to Top Hit:

SCRA|18000005109762 /altid=gi|2599548 /def=gb|AAB95161.1| (AF029346)  
chloride channel protein 3 [Homo sapiens] /org=Homo  
sapiens /taxon=9606 /dataset=nraa /length=818  
Length = 818

Score = 1572 bits (4026), Expect = 0.0

Identities = 764/765 (99%), Positives = 764/765 (99%)

Query: 27 GTHYMTNGGSINSSTHLLDLLDEPIPGVGTYYDFHTIDWVREKCKDRERHRRINSKKKE 86  
GTHYMTNGGSINSSTHLLDLLDEPIPGVGTYYDFHTIDWVREKCKDRERHRRINSKKKE  
Sbjct: 54 GTHYMTNGGSINSSTHLLDLLDEPIPGVGTYYDFHTIDWVREKCKDRERHRRINSKKKE 113

Query: 87 SAWEMTKSLYDAWSGWLVTTLTGLASGALAGLIDIAADWMTDLKEGICLSALWYNHEQCC 146  
SAWEMTKSLYDAWSGWLVTTLTGLASGALAGLIDIAADWMTDLKEGICLSALWYNHEQCC  
Sbjct: 114 SAWEMTKSLYDAWSGWLVTTLTGLASGALAGLIDIAADWMTDLKEGICLSALWYNHEQCC 173

Query: 147 WGSNETTFEERDKCPQWKTWAEIIQQAEGPGSYIMNYIMYIFWALSFAFLAVSLVKVFA 206  
WGSNETTFEERDKCPQWKTWAEIIQQAEGPGSYIMNYIMYIFWALSFAFLAVSLVKVFA  
Sbjct: 174 WGSNETTFEERDKCPQWKTWAEIIQQAEGPGSYIMNYIMYIFWALSFAFLAVSLVKVFA 233

Query: 207 PYACGSGIPEIKTILSGFIIRGYLGKWTLMIKTITLVLAVASGLSLGKEGPLVHVACCCG 266  
PYACGSGIPEIKTILSGFIIRGYLGKWTLMIKTITLVLAVASGLSLGKEGPLVHVACCCG  
Sbjct: 234 PYACGSGIPEIKTILSGFIIRGYLGKWTLMIKTITLVLAVASGLSLGKEGPLVHVACCCG 293

Query: 267 NIFSFLPKYSTNEAKKREVLASAASAGVSVAFGAPIGGVLFSLSEVSYFPLKTLWRSF 326  
NIFSFLPKYSTNEAKKREVLASAASAGVSVAFGAPIGGVLFSLSEVSYFPLKTLWRSF  
Sbjct: 294 NIFSFLPKYSTNEAKKREVLASAASAGVSVAFGAPIGGVLFSLSEVSYFPLKTLWRSF 353

Query: 327 FAALVAAFVLRNINPFGNSRLVLFYVEYHTPWYLFELFPFILLGVFGGLWGGAFFIRANIA 386  
FAALVAAFVLRNINPFGNSRLVLFYVEYHTPWYLFELFPFILLGVFGGLWGGAFFIRANIA  
Sbjct: 354 FAALVAAFVLRNINPFGNSRLVLFYVEYHTPWYLFELFPFILLGVFGGLWGGAFFIRANIA 413

Query: 387 WCRRRKSTKFGKYPVLEVIIVAAITAVIAFPNPYTRLNTSELIKELFTDCGPLESSSLCD 446  
WCRRRKSTKFGKYPVLEVIIVAAITAVIAFPNPYTRLNTSELIKELFTDCGPLESSSLCD  
Sbjct: 414 WCRRRKSTKFGKYPVLEVIIVAAITAVIAFPNPYTRLNTSELIKELFTDCGPLESSSLCD 473

Query: 447 YRNDMNASKIVDDIPDRPAGIGVSAIWQLCLALIFKIIMTVFTFGIKVPSGLFIPSMIAI 506  
YRNDMNASKIVDDIPDRPAGIGVSAIWQLCLALIFKIIMTVFTFGIKVPSGLFIPSMIAI  
Sbjct: 474 YRNDMNASKIVDDIPDRPAGIGVSAIWQLCLALIFKIIMTVFTFGIKVPSGLFIPSMIAI 533

Query: 507 GAIAGRIVGIAVEQLAYYHHDWFIFKEWCEVGADCITPGLYAMVGAAACLGGVTRMTVSL 566  
GAIAGRIVGIAVEQLAYYHHDWFIFKEWCEVGADCITPGLYAMVGAAACLGGVTRMTVSL  
Sbjct: 534 GAIAGRIVGIAVEQLAYYHHDWFIFKEWCEVGADCITPGLYAMVGAAACLGGVTRMTVSL 593

Query: 567 VVIVFELTGGLEYIVPLMAAVMTSKWVGDAFGREGIYEAHRLNGYPFLDAKEEFTHRTL 626  
VVIVFELTGGLEYIVPLMAAVMTSKWVGDAFGREGIYEAHRLNGYPFLDAKEEFTHRTL  
Sbjct: 594 VVIVFELTGGLEYIVPLMAAVMTSKWVGDAFGREGIYEAHRLNGYPFLDAKEEFTHRTL 653

Query: 627 AADVMRPLRNDPPLAVLTQDNMTVDDIENMINETSNGFPVIMSKESQRLVGFALRRDLT 686  
AADVMRPLRNDPPLAVLTQDNMTVDDIENMINETSNGFPVIMSKESQRLVGFALRRDLT  
Sbjct: 654 AADVMRPLRNDPPLAVLTQDNMTVDDIENMINETSNGFPVIMSKESQRLVGFALRRDLT 713

Query: 687 IAIESARKKQEGIVGSSSRVCFAQHTPSLPAESPRPLKLSILDMSPTVTDHTPMEIVVD 746  
IAIESARKKQEGIVGSSSRVCFAQHTPSLPAESPRPLKLSILDMSPTVTDHTPMEIVVD  
Sbjct: 714 IAIESARKKQEGIVGSSSRVCFAQHTPSLPAESPRPLKLSILDMSPTVTDHTPMEIVVD 773

Query: 747 IFRKLGLRQCLVTHNGRLLGIITKKDILRHMAQTANQDPASIMFN 791  
IFRKLGLRQCLVTHNGRLLGIITKKDILRHMAQTANQDPASIMFN  
Sbjct: 774 IFRKLGLRQCLVTHNGRLLGIITKKDILRHMAQTANQDPASIMFN 818 (SEQ ID NO:4)

FIGURE 2C



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>CRA|18000004989660 /altid=gi|4502869 /def=ref|NP\_001820.1| chloride  
channel 3; ClC-3 [Homo sapiens] /org=Homo sapiens  
/taxon=9606 /dataset=nraa /length=820  
Length = 820

Score = 1567 bits (4013), Expect = 0.0  
Identities = 764/767 (99%), Positives = 764/767 (99%), Gaps = 2/767 (0%)

Query: 27 GTHYMTNGGSINSSTHLLDLLDEPIPGVGTYYDDFHTIDWVREKCKDRERHRRINSKKKE 86  
GTHYMTNGGSINSSTHLLDLLDEPIPGVGTYYDDFHTIDWVREKCKDRERHRRINSKKKE  
Sbjct: 54 GTHYMTNGGSINSSTHLLDLLDEPIPGVGTYYDDFHTIDWVREKCKDRERHRRINSKKKE 113

Query: 87 SAWEMTKSLYDAWSGWLVTTLTGLASGALAGLIDIAADWMTDLKEGICLSALWYNHEQCC 146  
SAWEMTKSLYDAWSGWLVTTLTGLASGALAGLIDIAADWMTDLKEGICLSALWYNHEQCC  
Sbjct: 114 SAWEMTKSLYDAWSGWLVTTLTGLASGALAGLIDIAADWMTDLKEGICLSALWYNHEQCC 173

Query: 147 WGSNETTFEERDKCPQWKTAELIIGQAEGPGSYIMNYIMYIFWALSFAFLAVSLVKVFA 206  
WGSNETTFEERDKCPQWKTAELIIGQAEGPGSYIMNYIMYIFWALSFAFLAVSLVKVFA  
Sbjct: 174 WGSNETTFEERDKCPQWKTAELIIGQAEGPGSYIMNYIMYIFWALSFAFLAVSLVKVFA 233

Query: 207 PYACGSGIPEIKTILSGFIIRGYLGKWTLMIKTITLVAVASGLSLGKEGPLVHVACCCG 266  
PYACGSGIPEIKTILSGFIIRGYLGKWTLMIKTITLVAVASGLSLGKEGPLVHVACCCG  
Sbjct: 234 PYACGSGIPEIKTILSGFIIRGYLGKWTLMIKTITLVAVASGLSLGKEGPLVHVACCCG 293

Query: 267 NIFSYLEPKYSTNEAKKREVLSAASAAGVSVAFGAPIGGVLFSLSEVSYFFPLKTLWRSF 326  
NIFSYLEPKYSTNEAKKREVLSAASAAGVSVAFGAPIGGVLFSLSEVSYFFPLKTLWRSF  
Sbjct: 294 NIFSYLEPKYSTNEAKKREVLSAASAAGVSVAFGAPIGGVLFSLSEVSYFFPLKTLWRSF 353

Query: 327 FAALVAAFVLRINPFGNSRLVLFYVEYHTPWYLFELFPFILLGVFGGLWGAFIRANIA 386  
FAALVAAFVLRINPFGNSRLVLFYVEYHTPWYLFELFPFILLGVFGGLWGAFIRANIA  
Sbjct: 354 FAALVAAFVLRINPFGNSRLVLFYVEYHTPWYLFELFPFILLGVFGGLWGAFIRANIA 413

Query: 387 WCRRRKSTKFGKYPVLEVIIVAAITAVIAFPNPYTRLNTSELIKELFTDCGPLESSSLCD 446  
WCRRRKSTKFGKYPVLEVIIVAAITAVIAFPNPYTRLNTSELIKELFTDCGPLESSSLCD  
Sbjct: 414 WCRRRKSTKFGKYPVLEVIIVAAITAVIAFPNPYTRLNTSELIKELFTDCGPLESSSLCD 473

Query: 447 YRNDMNASKIVDDIPDRPAGIGVSAIWQLCLALIFKIIIMTVFTFGIKVPSGLFIPSMIAI 506  
YRNDMNASKIVDDIPDRPAGIGVSAIWQLCLALIFKIIIMTVFTFGIKVPSGLFIPSMIAI  
Sbjct: 474 YRNDMNASKIVDDIPDRPAGIGVSAIWQLCLALIFKIIIMTVFTFGIKVPSGLFIPSMIAI 533

Query: 507 GAIAGRIVGIAVEQLAYYHHDWFIFKEWCEVGADCITPGLYAMVGAAACLGGVTRMTVSL 566  
GAIAGRIVGIAVEQLAYYHHDWFIFKEWCEVGADCITPGLYAMVGAAACLGGVTRMTVSL  
Sbjct: 534 GAIAGRIVGIAVEQLAYYHHDWFIFKEWCEVGADCITPGLYAMVGAAACLGGVTRMTVSL 593

Query: 567 VVIVFELTGGLEYIVPLMAAVMTSKWVGDAFGREGIYEAHIRLNGYPFLDAKE--EFHT 624  
VVIVFELTGGLEYIVPLMAAVMTSKWVGDAFGREGIYEAHIRLNGYPFLDAKE EFHT  
Sbjct: 594 VVIVFELTGGLEYIVPLMAAVMTSKWVGDAFGREGIYEAHIRLNGYPFLDAKEEFHT 653

Query: 625 TLAADVMRPLRNDPPLAVLTQDNMTVDDIENMINETSYNFGFPVIMSKESQRLVGFALRRD 684  
TLAADVMRP RNDPPLAVLTQDNMTVDDIENMINETSYNFGFPVIMSKESQRLVGFALRRD  
Sbjct: 654 TLAADVMRPRNDPPLAVLTQDNMTVDDIENMINETSYNFGFPVIMSKESQRLVGFALRRD 713

Query: 685 LTIAIESARKKQEGIVGSSRVCFAQHTPSLPAESPRPLKLSILDMSPTVTDHTPMEIV 744  
LTIAIESARKKQEGIVGSSRVCFAQHTPSLPAESPRPLKLSILDMSPTVTDHTPMEIV  
Sbjct: 714 LTIAIESARKKQEGIVGSSRVCFAQHTPSLPAESPRPLKLSILDMSPTVTDHTPMEIV 773

Query: 745 VDI FRKLGLRQCLVTHNGRLLGIITKKDILRHMAQTANQDPASIMFN 791  
VDI FRKLGLRQCLVTHNGRLLGIITKKDILRHMAQTANQDPASIMFN  
Sbjct: 774 VDI FRKLGLRQCLVTHNGRLLGIITKKDILRHMAQTANQDPASIMFN 820 (SEQ ID NO:5)

FIGURE 2D

Attorney Docket No. CL001163  
Application Serial No. 09/804,472  
Inventors: Wei SHAO et al.  
Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

```
>CRA|1000685681515 /altid=gi|6634696 /def=emb|CAA71072.2| (Y09941)
      putative chloride channel ClC-3 [Xenopus laevis]
      /org=Xenopus laevis /taxon=8355 /dataset=nraa
      /length=791
      Length = 791
```

Score = 1559 bits (3993), Expect = 0.0  
Identities = 745/791 (94%), Positives = 771/791 (97%)

```
Query: 1 MDASSDPYLPYDGGGDNIPLRELHKGTHYTMNGGSINSSTHLLDLLDEPIPGVGTYYDD 60
      MD SSDPYLPYDGGGDNIPLR+LHKGTHYT+TNGG+INS+THLLDLLDEPIPGVGTYYDD
Sbjct: 1 MDISSDPYLPYDGGGDNIPLRDLHKGTHYTVTNGGAINSTTHLLDLLDEPIPGVGTYYDD 60
      (SEQ ID NO:6)
```

**Hmmer search results (Pfam):**

Model	Description	Score	E-value	N
CE00039	CE00039 chloride_channel	1671.9	0	1
CE00420	E00420 CLC	1288.1	0	2
PF00654	Voltage gated chloride channels	1172.4	0	1
PF00571	CBS domain	78.1	7e-20	2

**Parsed for domains:**

Model	Domain	seq-f	seq-t	hmm-f	hmm-t	score	E-value
PF00654	1/1	71	622 ..	1	621 []	1172.4	0
PF00571	1/2	645	690 ..	11	54 .]	31.4	5.8e-07
CE00420	1/2	32	697 ..	1	729 [.	1174.4	0
PF00571	2/2	726	778 ..	1	54 []	47.4	2.2e-11
CE00420	2/2	722	791 .]	867	942 ..	110.6	6.5e-32
CE00039	1/1	60	791 .]	1	804 []	1671.9	0

FIGURE 2E





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Application Serial No. 09/804,472  
Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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151	TGCTGACTGT	CATTTTCATT	CTTTATGATC	AAGTTGTAGA	TCAGGAAAAA
201	CAAGTTAAGA	GAGTGCCTAC	AAATACCGGG	AAAACCTGTG	GATAGATTTT
251	CATTTTTTAT	GTAAAGACAT	ATAAGAACAT	GAATGGTATA	AAAACAAAAT
301	CCTTTATAAA	TGCCATACAA	TTATATATTT	AGAAAAATTA	TATGGTGGTA
351	AAACATATAA	AAGAACCACA	CACTCCCAAA	TTTACATTGA	GCTAATTTAG
401	TACAGTTAGC	CTTTGTCAAA	GCTTTCCTTG	TTTAAAAAAA	CTATTGGCTC
451	AGTGTGCAGG	AAGGAGCATA	GGAGAAAAAA	TTGCCAAGAA	TATTTGAAAA
501	ATACAGAAAA	TAAAGAAAAA	AATCACCTAC	TATCCTATCA	AAAATTTTAA
551	TAGCTAGAAT	CAGGATAAGA	TAGAATATTC	CTGTGGCAGT	AATTCTAGTC
601	TATATTCCTT	TCCTGGAACC	CTGTCTCCCA	AATTTTCAGG	GAGATTTTAT
651	AAGAAGCTCT	GTTTATCTGA	GATTTTAAAT	ATAAAAACTT	GATTTAACCT
701	ATACAGTTTT	TTAAAAAGAC	CCTAAATAAG	TAAAAATTTAG	TACTCCACAA
751	ATTGAAGAGA	ATTTCTCTCT	TCTCTTTACT	GCCCTCTGAG	TTTTCTCTTT
801	CCTTCTCTCA	CCTCCAATTT	TCATGTAAAC	ACTTTCAGTT	CGAGTGGACC
851	TTAGAGATTG	TCTCATTCAA	TACTTTTAGGA	AAACAAAATTT	TATAGAACCC
901	TTGAGTTCTG	TGGAATTGCT	TCTAATGAAC	AACACCTTTT	GTTGTTGTTG
951	TTGTTTAGTG	ACACTGTGTA	ACAGGCATTT	CAGGAGGAGA	ATCTCCCAGT
1001	CTAGAGGAAT	CCTCTCAGAG	GTAGCTATAA	AATATTGAAC	TCTGATCTTC
1051	AATAAGCATT	GTGCGGTTTT	TGTTTTTGTG	TTTAATGACA	GTTTTAAACA
1101	AGAAAGTTGC	TTTATTTCTG	AACTTCATAA	AAATTTCTAT	TAAAGAGACA
1151	ATTTCTGAAT	TTTCTAGAAC	AGTTGAGTAC	CTCACTTTGA	
1201	GACACATTTT	TGCTAAAAGT	TAAAAACACA	AAACCCTTAT	GAGATAAAAT
1251	AGGAAGCTAG	TAGAGATAGG	AAAGTCCTCT	GCTTAGTAAA	CCTCTTTTTT
1301	GCGTAGTTTA	GACACATACA	ATAGTAAAGT	TACTTAGTAC	GTTGATAGTT
1351	TTCTTTCTCC	TCAAAAGCTA	CAATGTCTTA	CTAGCTAGTT	CCTTCAAGAA
1401	AGGAAACAAG	AAGCCGCTGG	AGGAGATTGG	TGAGTGGGAT	AAAACACTAT
1451	TCAACTCTTC	AGTTATTCGG	TTTTTAAATC	CTCAATGAAA	GGCTGCTGTA
1501	TTATAGAGTA	TTTTTTTTTT	ATTTTTAATA	GACTTAGAAC	CAAGTTTCTT
1551	GAGAAACCTT	TGGCATATTG	TAGTTTTTTT	ATGGCTATGA	CTCACATGAC
1601	ATTACTGTAT	AAAAC TAGTA	CATTCTCTCG	TAAAACCACA	CAAAC TACT
1651	AGAGTGCTGC	TCTCATTTTT	CTACATTAGA	AATGAAAAAG	GGCATTGTCT
1701	GCATTCAAAA	TTTCCTTTTT	ACATCTCTGT	ATTACTTTTT	CCCCTTTATA
1751	TTTATCTTAA	AACCAAAAGA	AATAATGTTT	CTATTGTTTT	ACTGTAGTTA
1801	CCACTGATGC	TACCGAAGCT	GTATTGTGAG	TGTTTCAAAA	TTCTCAAACC
1851	AGTTTTGTGT	TTTTTTTCTG	GAGCTTAGTC	ATTGTCATAC	GTAGCAGGAC
1901	CTGATTAAGA	AGGCTGTGCC	GCCTCTAAGC	CTTGCTAGAT	TGTAGCCACT
1951	AGCAACCAGG	CTGCAATAAT	TTCCCTTTGA	TGACATCATC	CACTGTGGAA
2001	GAACCCAGTT	GCTTCAGCGA	GTCGAACTAC	AGTTTTTAACC	TCATCAAATA
2051	TGGCATCTCC	CTTGCTTGCT	GCAGCAGGGA	TGGAAGAAAT	GTCAC TTTCT
2101	TTTTAAGCTA	GCAAGCTTTT	TCTTTTCTTT	TTTCTTCTTC	TATTTAAAAA
2151	TTCTAATCAT	GGATGCTTCT	TCCGACCCTT	ATTTGCCTTA	TGACGGGGGA
2201	GGAGACAATA	TTCCCCTGAG	GGAATTACAT	AAAAGAGGTA	ATACTATCCC
2251	CTTGCTGTGA	ATTCTCTGTT	GGTATGTTTT	GCATGCGGCT	GGGCGGTCCT
2301	CTAGCTTAAA	CTGGTTCTCG	TTTGTCTTTT	AAATACTGCA	GTACGTGTGT
2351	TAGTTGCCCT	GGGTTGTTAG	TAAGGGGAAA	ATGCAACCTT	CTGAATGGTT
2401	GTGTAGCCAT	CCCTGATTGT	TTTCTCTGTG	CAGATTAGTA	CTGCTTCAGA
2451	TCACGTCGGG	CTCCGACTCC	ATCTTCTGCA	TGAAAATCTT	CTTTCTAACT
2501	CTGAAAATGA	ATTAATCTGC	TTTTACAGCC	AAC TAAAGTC	GTGTTGGTTG
2551	GCATCTAAAA	AGTAATGTTT	TTCTTCCTTC	AGAAAAC TTA	CATTTCTTTT
2601	AATTTACACA	GAGAAATCAG	GTGCCTATGT	ACCATTATAT	TTTAGCTGCT
2651	GCCAATTACC	ATGTAGATTT	TACACCACAA	AGTAAATTTA	TAGCAAAAGC
2701	TTTACCTACA	TTTTTAGAACA	TTTTAAATATG	ATAGTAAAGA	TGAATATTTT
2751	CTATATTAAT	ACTTTTTTAT	TAATATGTAT	TTCCGGCTGAG	TAACATACTA
2801	CATTGTCTTC	CACAGGTATC	TTGTGAAATT	TGATATGATA	AAACACATTT
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2901	CCAGCATGCC	TGTAAATCTT	TTGGCAGGCA	CTTCCTCAGT	CTCCTTAAAA
2951	TTAATTGCAT	GTTAATTACT	ACCCTTTTTT	TCATTTTTGT	TTAATTGCTT
3001	ATTCGAAAAA	CAGACTGGTC	GACATTTGTT	GTCCTAGAAA	AAAATTGAAC

FIGURE 3A



Attorney Docket No. CL001163  
Application Serial No. 09/804,472  
Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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301 TTTGAATTAC TGCATGATAT TATAAACTCA CCTTATGATT TAACCCAAAC  
3151 TTTTATTTGT AAGTATATAA GGAAGTAATA ATGTTTTTCT AATATAATTA  
3201 GCCTGCCTTA TTTAAAAAT ACTTTGTGTT CTGATAACAC TTTTTTTTA  
3251 GTATTAAGTT CCACATAAAT TTAAACATTA TAATGTATTC AACAAATGTC  
3301 TGTGTGGTGC ATTGTGCTG CTACACACTA TTTTAGGGTC TGAACAGTTG  
3351 TAGCATTATT TATCTTGCAG TATTCTGTAG TTAGTAAAAA CTTGCTTTTT  
3401 ACATTTTGAG AAAAGCTGTG TAAGGATCAT GTTACATACA TTGTGCTTTC  
3451 TCTTACAGAG TTACCTTCTT AATAAAATTT TGATATATGT GTATATGTAT  
3501 ATGTTAGAAC ATTTGGAAGA AATATCTAAA AGCATAAAGA AGAAAAAAT  
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3901 AGAAATAAGT CAAAACCTAT GTGAGAGTAG GCATGGTTAC TGATAATTACC  
3951 TAAACGTAAG CTTTTTATTT CTATTATACT TTCATAAATA ATCCTTTAAG  
4001 AATCTTGCTT AGGATCTAAA TCAGTCCAC TCTTGGCAGC TCAAATAGGT  
4051 TCTTTATCCC TTGATGAGAC TTATTCTATT AATATAAGTC ATTGTTATTT  
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4151 CGTGACTGTA CTGTATTACC TCAAACATAC TGTAGTATCC TAGTGTCTAT  
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4301 TGAATCAGCT TCCCTGTGAG GAAGAACAAA ACTATAATGA TTAATTTGA  
4351 TCTTCAGCCT GATAGTGAAG AGGCAGATAA AGTATAAAAT TGTGAAGGAT  
4401 ATCAATAAAG TAAACATGGA TCTGTTTGT AGTATCCCTGA GTGCTATAGC  
4451 CAAGGATTAC CTTTGTGAG TAAATTGAAT TTAATACTAC TTTTCAAGGC  
4501 GAGATGGTAA ATGGTGAAGC TTCCTATTTA AGTAAATAAT GTCAAGTCTG  
4551 GAAGTATAAG TAGATTCAA TTAGAATTAG TTTGATATAC TATTGATAGA  
4601 TTAGAAATTA AGATGACATT TCAGAAATAG CCATCTTTAG GGGTAGATTT  
4651 CCTATATAGA AACAATCAAG CTCTCTCAA ATGTCTCTTC CTTTTTTATC  
4701 AGGAAAAAAG ACTTGGCTTA TCTGGACTGT TAGTTTTACA CTTTTTCTTC  
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4801 CTACCAACCC TTTATAATGG ATTTGATTCT TTTGGGCTG AGCCTCCATT  
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5101 NNNNNNNNNN NNNNNAAAAT AGTAATATTA ATAATAGTTA ATATTTATTA  
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5201 TTGTTGTTGT TGTGTTTTC TTAAGAGAGA GGTATCACTT TTTACCCAG  
5251 GCTGGAGTGC AGTGGAGTGA TTATAGCAA TGCAGCCTG AACTACTGGG  
5301 CTTAGATCCT CCGTCTCACC CTCCTTGGTA CCTGGGACTG CAGGCTTGCA  
5351 ACACCTTGCC TGGCTAATTT AAAAAACAAA ATTTTTTTTT TTTTAGGGA  
5401 GAGTCTCACT ATGTTGTCCA GGCTGGTCTC CAACTCCTGG GCTCAAGCAA  
5451 CCCTCCTGCC TTGGCCTCCC AAGTAGCTGA GATTACAGGT GCGAGCCACT  
5501 GTGCCCTGGT TGTCTAAGT GCTTTATGTG TATGAAATTA TTTAATCCT  
5551 CATCACAAGT TTATGAAGTA GGTACTGTTA TAATCCCCAT TTTCTAGTTG  
5601 ACAAGACTGA GGTAAGGAAT TGTTAAGGAA AAGTCAGAAT TCCATCCAGA  
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5751 AACACAGACA GAATCCTGTG GAAGTTAGTA AATTTCTAGT GAACGATAGA  
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5851 CTTTGGACAA GTGTTATCAA AGTAGACTGT TCTCACATAC ACGGGGACT  
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FIGURE 3B



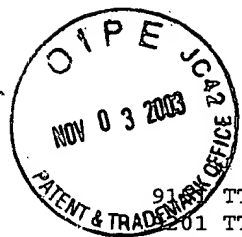
Attorney Docket No. CL001163  
Application Serial No. 09/804,472  
Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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6151 CTCCCTGAAA TTATTTCTTG ACATTCATTA GCTCAGCAGT GTATCTAAAT
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6651 ATGCCATCTC ATGGCTTGTC AGAAATGCTT TGTATCAAGA TTTCCGAGTG
6701 TGAACAGATT TCCTGCCGCA TTGATTAAAG TTGTAATTTT GGCTATTTTC
6751 CCAGCATCGA GGTTTCTGCT TTGCGTTTAT GCAGGAGACT GGTAGTTTAA
6801 ATTGAACTTT AAGGTTTGTG TTCTTGTTTT TAAGTTAACA TATGTTAAT
6851 TTCTAGTTTC TTTGTAGCCC TTTGCAACTT TAATTAGGTC ATAAAAATGGA
6901 TTTACTCTAG TTTCTCTAAC AAATTTTATA AATTTATGAA ATATGAAAT
6951 TAGCAAAATT TATAAACCTT TTTATTCATG TATTGTACAG CTCATCATAT
7001 TTGCAGACAT AATAATTGAA TGTGGAACCT GTTTCCAATT ACACAGATGT
7051 CTTAATATCC ACCTTATCAT CTCTAACTAA AGGATGTGGC TTTTATTTT
7101 TGAGGTGGCA ACAGAACAGA AAAGAAAACA GTGAATTGAG TAATGGGCTT
7151 AGTATTGCTG CTGCCCTGTT GTGTATCTTT GGTAAACTTC TTTGAGATTT
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7251 GGCTGAACAA ATTTTAAATG CGTATGCTTC TTTTGTGCTA TTTATTTACC
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7401 ACTATCAACT TAGAACGTTT ACTTTCCCAT CCCTTACCAG GATGGCCATT
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7601 TATGTTTTTAT GTGTGCTTAT TGTAACAGTA ATCTGCATTA TGAACCTAAA
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7751 ATTTGGATAA ACCCCTTGA GAAAAGGCTT AGGCTCCTGC CAGTGTCACT
7801 GTGATATTTA CTAATAAGCT CAGTTTAAAG CGCAGCAATT AAGGTTGTGT
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8901 ATCTATTTTT TTTATTTTTG TCCCTTTTGC ATTGATGTCA TATCTAAAAA
8951 ACCTGCCTAA CTCAGGATCA CAAAAATTTA CTCCTGTATT TTATAATTTT
9001 AGCTCTTTAG ATCTAGGATC CATTTTATAG TAATTTTAT ATATGGTGTG
9051 AGGTAGGGGT ACGGTTTCAT TCTTTTGCAC GTGAATAGCC AGTTGTCCCA
9101 GCATCATTTA TTCAAAAGAC TATTCTTCC TCAC TAGAAA AAATATTTCT
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FIGURE 3C



Attorney Docket No. CL001163

Application Serial No. 09/804,472

Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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9301 CCATAGGTAT GCTTGATCTT TATAAAGTTC CCTGTCTCTG GAAAACTAA  
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9401 AAGCCAGTTT TAGTTCATCG ATTGGATAAT TTTTCCTGCT TGCTGGAGGT  
9451 ATTTCAAGTAT TGGTAATACC TGAACATGA GGATGCATGA ATGATGCATT  
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9551 GTTAAAAATA CAGGATTTTT GCTCAATATA CAGTTGTAGA AGAACTCATT  
9601 GTCCAAATTT TTAAGACTTT TTTTCTTTT TTTTTTTGAG ATGGATCTCG  
9651 CTCTGTGCGC CAGGTTGGAG TGCAGTGGCA CAACCTCCAC TCACTGCAAC  
9701 CTCCACGCTC AGGTTTCAAG TGATTCTGCT GCCTCAGCTT CCCGAGTAGC  
9751 TGGGGACTAC AGGCATATGC CACTATGCCC GCCTGATTTT TTTTAGTAGA  
9801 GATGGGGTTT CACCATATTG GCCAGGCTGC TCTTGAACCT CTGACCTCGT  
9851 GATCCACCCG CCTCAGCCTC CCAAAGTTCT GAGATTACAG GTGTGAGCCA  
9901 CCGCGCCCGG CCAGACATTT TTTTTTTTTT TTTTTTTTTT GCTGTCTTTG  
9951 TCATATTGTT AGTCTTTTGG TTAAGCGATA TTATACTTA GTCATATGAG  
10001 TAATATAATG CAACATGCTG AATTGTGTGT GTGAGAGGGG GTTGTTTTTT  
10051 GTTTGTTATT TGTTTTTTAA ATAGAGATGA GATCTCACTG TGTTTCCAG  
10101 GCTCCCTTGA ACTCCTGGGC TCAGATGATA TAGCCTCCTG CCACAGCGTC  
10151 CTGATTAGCT GGGACTACAG GTGTGCACCA CTACACGTGG CTTTCCTGAT  
10201 GAAATTTTAA ATACCCAAAT ATTTGAGCAG AAATAATAGC TTGTGTTTAT  
10251 TGTTTTTCTA CTATCTGTCA AGTATAGTAT TAAATGTTTT ACATAATTG  
10301 TCTCCAGTCC ACATACAATA CTCTAGTAGA AGTGGGTAAC AAAACCAAGG  
10351 TACTCAAAGA GGTAAATAAG TAACTTGCCT TGGATCACAG AACTAACGGG  
10401 AGGCAGGGCT GGAATTTGAC TCTAGGTCTT TCTGACCTCA AAGTGCAGTA  
10451 AAGTCATGGA ATTTCTCTAC TAGGCCACCT GGAAGAAAAG TGATCTTTTT  
10501 TCCAGTCTTT TTTGTTACTG TTTTTCAGCC AGGAGATAGT AGAGTTAGGT  
10551 AGTAGAATAG TAGTCACTGG CATCCGGTAG TCAGCCCTCC AAAAAAGTTT  
10601 TTGATTTTTT TTTTTTTTTT TGTCTTAAAC TTGGAAGCTA CTAACCTTCA  
10651 GGTCACTATT TCTTATCATC CAAGAGCTGG ATATTTAGGT AGCAGAACT  
10701 ATGGAATTAT CCTAAGTCTT CTTGAAGCTT CAGCTGTAA AATTAAATTG  
10751 TTCTGATTAA CACTGTGCTC AAGATTTACA TTTCTAGGAG CCACAGTTTG  
10801 ATTGGTCTAA CTTGGATCTA TGTGTTTTCT TTAGCTGGGG AGGAGAAGGT  
10851 ATCTTGATTG ATACCTTCAC CAGGACTGCA TGCAGTGAGG GACAGAAGTT  
10901 TCCTTAAAT AATTGGGTTC TGTTATAGGA AGAAGGGGAA GGAGATACCA  
10951 AGTGGGCAAA ACAATCAGGT TCTATTACAT AAATAATAAA CCTAATGTGA  
11001 CGATAATAA TGGATAATAT GATTATTTTA AGTTTGGAAT TATACCTGGT  
11051 TATTAGTATT GGATATCTGG TAGTGGGGTT GGAGAAAAAG TCGAGAATAA  
11101 GAAAAGACTT AAAATCGTAA AAATTAACCTG GAAAAGAGGA TGGCTGAGCA  
11151 GATACATATA TGTTAGATAA TGTTTATAAT GGCAAACCAA CCTGAAGATT  
11201 TGTTTAAATT GTAGTATGTA GCCAGGTGTG GTGGTGCTTG CCTGCAGTCC  
11251 CAACTACTTG GGAGGCTGAG GCAGGATGAT TGCTTGAGCC TAGGTTTGAG  
11301 GCTACAGTGA GCTATGTTTC CACCACTGCT TTCCAGCCTA GGTGGCAGAG  
11351 CAAGACCCCA TCTCTAAAAA AATAAAGTAA AATGAATAA TTATAATATG  
11401 TTATGACAAA TATAGTTATC TGAAGTCACA GAAAATGTGC ATGTGCATTT  
11451 AATGATGTGA AATAATTTTT AGGAAGTATG AATAAAAAAA TCAACTTTTA  
11501 AGTGTGGCTA GTATGATCTT ACCTGTATCT CACTTATAGA AAATATAAAA  
11551 GGCTGAAGCC AGTCACCACT TTAATAGTTC TAACCTCTTG TTTACTTGAT  
11601 TCCCTTTTTT CTCCTCCCA GCAATCCTCA TATAGTTAGG TAAAGTTGGT  
11651 TCTTCATCAG CTTGTTGCA GAAACCCCTA AGCCTTTTTA CTTAAAGCTT  
11701 TTTGAAACCC AGAAACCCAT CTTTTGAATT CAAAAGTTT GACTGTTATT  
11751 AGTCTTTTTG TATGTTTGTT GGCCGCATAA ATGTCTCCTT TTTATGAACA  
11801 GAGAAGTGTC TGTTAATATA CTTTGCCAC TTTTGATGG GGTGTTTGT  
11851 TTTTTCTTG TACATTTGTT TAAGTTCCTT GTAGATTCTG GATATTAGAC  
11901 CTATGTCAGA TGGATAGATT GCAAAAGTTT TCTCCCATTC TGTAGGTTGC  
11951 TTGTTCAATC TGATGATAGT TTCTTTTACT GTGCAGAAGC TCTTTAGTTT  
12001 AATTAGATCC TATTTGCTG TTTTGGCTT TGTCGCCATT GCTTTTGGTG  
12051 TTTCAATCAT GAGTCTTTG CCAGTGCCTA TGTCTGAAT GGTATTGCCT  
12101 AGGTTTTTCAT GGTTTTGGGT TTTACATTTA AGCCTCAAAT CGATCTTGAG  
12151 TTAATTTTTG TATAAGGTGT AAGGAAGGGG TCCAGTTCCA GTTTTCTGCA

FIGURE 3D



Attorney Docket No. CL001163  
Application Serial No. 09/804,472  
Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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12251 TATGGATAGC CAGTTTTCCC AGCACCATTT ATTAATATTA AATAGGGAAT
12301 CCTTTCCCCA TTACTTGTTT TTGTCAAGTT TGCTGAAGAT CAGATGATTG
12351 TAGATGTGTG GTGTTATTTC TGAGGTCTTT GTTCTGTTCC GTTGGTCTGT
12401 ATATGTGTTT TGGTACCACT ACTATGCTGT TTTGGTTACT GAGCCTTGTA
12451 GTATAGTTTG AAGTCAGGTA GTATGATGCC TCCAGCTTTG TTATTTTTCG
12501 TTAGGATTGT CTGGCCATA CGGGCTCTTT TTTGGTTCCA TATGAAATTT
12551 AAAGTAGGTT TTTCTAATTT TGTGAGGAAA GTCAATGGTA GCTTGATGGG
12601 AATAGCGTTG AATCTATAAA TTACTTCGGG CAGTATGGCC ATTTTCATGA
12651 TATTGATTCT TCCTATCCAT GAGCATGGAA TGTTTTTCCA TTTGTTTGTG
12701 TCGTTTCTTA TTTCTTGGG CAGTGGTTTG TAGTTCCTCT TGAACAGGTC
12751 CTTACGCTCT CTTTAAAGTT GTACTCATCA TCACTGATCA TTAGAGAAAT
12801 GAAAAATCAA ACCACAATGA GATGTCATCT CATGCCAGT AAATGGTGAT
12851 TATTATAAAA AGTCAAAAAA GAATAGATGT GGGTAAGGCT GTGGAGAAAT
12901 AGGAATGCCT TTACACTGTT GGTGGGAGTG TAAATTAGTT CAACCATTGT
12951 GGAAGACAGT ATGGCGATTC CTCAAGGATC TAGAACCAGA AATACCATT
13001 GACCCAGCAG TCCCATTACT GGGTGTATAC CCAAAGGATT ATAAATCATT
13051 CTGCTATAAA GACACATGCA CACGTATGTT TATTATAGCA CTATTTACAA
13101 TAGCAAAGAC TTGAAACCAA CCAAAAAAGC CATCAATGGT AGACTGGATA
13151 AAGAAAATGT GGCACATATA TACCATGGAA TACTATNNNN NNNNNNNNNN
13201 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
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13301 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
13351 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
13401 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
13451 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
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13651 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
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13951 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
14001 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
14051 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
14101 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
14151 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
14201 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
14251 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
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14401 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN
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14501 NNNNTAAAAG ATACATCCTT TATTTCATGCG TAAGATGAAA TCGAGAGGTG
14551 AAATTGGATA TACTGTTGCT TTTAAAAAAT TTTAACATAT ATGTAATTTT
14601 TTGTACTTAT CTCATTTTAG CCTATATAAG TTATATATAT TTTGTTTGT
14651 TGTTTGTTTG TTTTGTTTGA GATGGAGTCT TGCTCTGTCA CCCAGGCTAG
14701 AGTGCAGTGG TGCAATCTCG GCTCACTGCA ACCTTCGCCT CCTGCATTCA
14751 AGCGATTCTC CTGCCTCAGC CTCCTGAATA GCTGGGATTA CAGGCACCTG
14801 CCACCGCGCC CAGCTAATTT TTTTATTTT TAGTAGAGAC AGGGTTTCAC
14851 CATCTTGGCC AGGCTGGTCT TGAACCTCTG ACCTTGTGAT CCATGTGCCT
14901 TAGCCTCCCA AAGTGCTGGG ATTACAAGCG GGAGCCACCG CGCCCGGCTG
14951 TAAGTTATAT CTTACACAAA TCTAGGTTTC ATTACAGAGAA TTATATGCAA
15001 AGAAACAGTG CAATAGGATT ATTTTAAAGC TATTGTTATT GTTAGAAAAC
15051 ATAATACCTT TAAATTCCTT TTTCACATTA GAAATATAGT GGCTTCTCCC
15101 CAGTTTAGGA TAGAAATTTT CCTTTTCTTC TCCTTCTTTA TACTATTAG
15151 ATTTGCATGT TTGACAGAAC AAATTATAAG AGAAAATATT TGAAATGTCA
15201 CATACTAAAG TAAATGTTTG AATGTTTGAA AATTTTCTGG TTTTCAGAGA
```

FIGURE 3E

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15301 TTTTGAATTG CTGAATCGTT GTGTAAATTA AGATGTTGAG TAGTTTCCAC  
 15301 AGAGTAATTA TTTGAAAGTC ACTGAAAGCA AGACACATGC CTAATGTAAA  
 15351 TGTATTATGC ACTACTGTAC CTTTTTCTAC CTCATAAAAA TGAGAAATAGC  
 15401 AGTCTGTACT TTTCCACTTC GTCATTCTGA AGTCTTTGCA GAAATTCATA  
 15451 TTTTGTTCGC TTATTATCTT CACGCTGTAA ATAGCTTGAA AATTCTTTAA  
 15501 GTGGGGCTAG CGATGTATTA TGGATACATG TTAAGTGGTA TAGAAATTTT  
 15551 ACTTTTTTTT TTTTGCATAA AGAGTAACAA GACCAGTAGT CCATATTTCT  
 15601 TCAGCTCTAC CCAGAGAAGG GCAATGTAGG AGGGAAAAATG AAGTTTGCAA  
 15651 AATATTTTCAT AGTAGGCTTT TTCTTAAAGT AACTTCAGAC TTACAGAAGT  
 15701 TTA AAAAATAG TACAAAGAAT CCCCATATAC CTGTCACCCC AATTCTTGAA  
 15751 ATATTAATAT TTTACCACAT TTGTTTCATTA TGTCTGTATT CTCCAAGTAC  
 15801 GATATATGCC ATTATATGTA ATATGTAGCA TTTTATATAG ACATAGGGCA  
 15851 TGTATGCACT ATATATTTTT TTCTGAGCCA CATAAAGAGT AAAACGCAGA  
 15901 CATGACGTGC TTTTACTCCT AAATACTTCA GTGTGTGTAT TCCCTCAAGA  
 15951 AAGGGCATT TCTTCTGTAT AGCTACCGTA CACTTCTACA CTTTTCAAAA  
 16001 TCAGAACATT TACATTGATA CCATACATAG ACATGATCTG CAGACCATT  
 16051 TCCAATATGC CAGTTGTCCC ACTGTGTCCT TTAGTACAAA AGAAAAAAGT  
 16101 TTTTTTTCCT GGTCTAGGAG CTAATCCTGG AGCACATGTT ACATCCTGTT  
 16151 GTTTTAATCT AGAACCGTTC CTCAGTTCTT TATCTTTCAT AACCTTGACA  
 16201 TTTTGGGAGA GTACAATCCA TATATTTTGC AGAATTTCCC TTAGTTTGGG  
 16251 TGTGTCTGGT TTTTCCTTAT AAGATTCATT TTATGCATTT CTGGCCAGAG  
 16301 TACCACAGAA GTACTGTATA TCTTACCAGA AAGCCTAAGT GGCATTTGCA  
 16351 TTTTCTAAAT GATCAATTTT AATATTATAT GGAAAGCAGA GTCAGAGATT  
 16401 CTCACATATG TCAAGATATT ATAAGTATTC CTGTTATATT TATTCTCCAA  
 16451 TTGCTTTTTT TCAAGAAAAT TTGTGGCCTT TCAGCTAGCT TTTCAAAGTG  
 16501 GAAGTTACTA CATAACATTA GGATGGGAGG GGTGGGGAAG AGCTTTATTA  
 16551 AAGCTTTAAG ATTGAGCTTT TGAGTATGTG TTGTATGTAA ATGAAAGTGG  
 16601 GCATTGATGC AGGGATTGGG CCTTTAAACC TTTGGCCAAG AATGGTATCA  
 16651 ATTATTATTA TTATTATTTT TTGGAGTACT TCTGCTAAAA CACTGAAATC  
 16701 AGTGTGCCAC TCTCCTTTTA GAAGTTTTC ACCTTTCCAA GGTACACTTT  
 16751 TTTTTTTTGA GACGAGTTT GCTCTGTCGC CCAGGCTGGA GTGCATTGGC  
 16801 GCAATCACAG CCCACTTCAG CCTCTGTTTC CCAGACTCCA GCAGTCCTTC  
 16851 CACTTCAGCC TCCCGAGTAG CTGGGATTAC AGGTGCACAC CACCATGCCC  
 16901 AGCTAGTTT TGTAGAGATG GGGTTTTGCC CATGTTGCCC AGGCTGGTCT  
 16951 CCAACTCCTG CGCTCAATCT ATCCGTCCTC CTCAGCCTGC CAAAGTACTG  
 17001 GGATTACAGG CGTGGGCCAC CACTCCCGGC TTCCAAGGCA GGCATTTAAA  
 17051 TGTAATAAAT AGGGAGATAA GCAAGAACCC TGTGGACCT GGTAGAAGCA  
 17101 AACATTTAT TACTACTATTA CGTTGTTTAA AATATTAGCG CCTTCTATAT  
 17151 TCATGTCCTC CCAGAATTAT CAAAAAACCT ACTCTATAGT TTATTTGGCT  
 17201 TATATCTCAG GAGTAATAAA ATTAGTTAAT AGTATTGGCA TCGTGGTTCT  
 17251 TTGTGTATTC CTCCCTTATC CCACCCCAAG TTGATTTCAC ATGATCTCTT  
 17301 GATCTAGTCT AAGAATGTTT ATAGTGATTA CGAGAAGTTC AGATTCTGGC  
 17351 TTTAACATAT ATAATTGTTT TTTAATCTGT AAACCAAAGA GAATGAGTTT  
 17401 GTTTAAACTA GAAAGATGGC AAGAGTAGTC TGGGAATTTT GTTCCATTCC  
 17451 TTAAAAGTCC TATAATAAAA TAAACATATC TTGTGTTTTA TTTTACAAT  
 17501 TTTTTTAAAC ATTAGTACAG AGTGCCACTT CTTATATTCT ATATCAAATA  
 17551 ATGAGCTACA TTTTCAATAA TAACCTCTGA GTAATTTTGT GCATTAAAAT  
 17601 GCTGCATTAC AAAATAATTT GAGGATATAA TTTATAATCA CTTATGCTAA  
 17651 AATCACCTAT TTGAAATTAT GTATGAGGTT TTCAAAGTTT ATAGTGCTTT  
 17701 GGAAAAAATT TAAATGTTTC TTTGTTTATG TATCTTTATT ATAAGCTGTA  
 17751 GCATATATCA TGATGTTGTC AAGGATGCTG ATAGATACTT AATATTTAAA  
 17801 GGAGACTTGT CTAAAGTTAG CTGTCCAGGA CTAGAATCTG GGCCTTTTGG  
 17851 TAACAGCTCA TTGCTCTATT TACTTAAATG ATGATTGGAT TCGTTAGAAT  
 17901 TTCTCTATTT TCATAGCTGT CTCTATGGTT CTATGAAAAT ACTGTGTGTG  
 17951 TGCTTATACA TATATGTATA CCTGTAAGTA CAAAGTAGAA AATGAAAGTT  
 18001 CATTTTCTGC TTTTGACAAT TGTAATCCCC AGAGATAACC GTTATTAATA  
 18051 TGTTGCTCTA TGTGTTGTC TACTGTTTTC TCTGTATTCT GTGTATTACT  
 18101 GTATAAATTT TACACAGTAA TTTGCATATT AAAAAATGCTG GTCTACACCT  
 18151 GGCCCTTTTT TAAAACTGC AATTTATTAT GGCCAATTTT TTATACCAGT  
 18201 ATATATTGAT CAACCTTATT CTTTTTAACT GCTGCATTTT ATTCAATTACC  
 18251 AATAGATGAG ACATTTCCAT TGGTTTGAAT TTTTCAGTAT TACAGATAAT

FIGURE 3F



Attorney Docket No. CL001163  
Application Serial No. 09/804,472  
Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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18301 GGTTCAATTA AATATTTAAG CTTTTGTGCA CTTGTAGAAT TAATTCCTAG  
18351 ACATAGAACC CTTATATTTT GATAGGTATT TCCAAATTTT TTCCCAAAAT  
18401 GTTTGTATCT CTTTACTTCC ACTCTCAGGT CTAATAATTT TCACTTGGAT  
18451 TATCATATTT CTTACCCAGC CTGTTTTTTA CACTCTAAAC TCTTTTCTT  
18501 TTCTTTTTTT TTTTGAGACA GCATCTTGCT CTTGGCCCGG TTGAAATGCA  
18551 GTGGCACCAC GACCAACCTG GGCTCAAGCA ATTCTCTCAA CTTAGCCTAC  
18601 TGAGTAGCTG GGACTACAGA CACATATCAC CATGCCCAGC ATTTTTTTTT  
18651 TTTTTTTTTT GGATTTTTAG TAGAGATGAG GTTTTGCCAT GTTGCCCAAG  
18701 CTGGTCTCAA ATTCCTGAGC TCAAGCAATC CACCCATCTC AGCCTCCCAA  
18751 AATGCTGGGA TTACAAGCGT GAGCCACTGC ACCTGGCCCA AAAGCTCTTT  
18801 TTCTAATAGC AATATAAATT GTCTTTTACA GACTATACTC ATATATGTTT  
18851 CTTCTTTTTCAG AAATAGGTGT TAAGTGTATC TAACATGGAA TGTATAGCTA  
18901 TAATTCTCAT TGTGAAACCA TAGCCTAATT TATTTTCATAT TACAATTTAA  
18951 AATTCATATT TTTTAGGAAG TTTTCTTAGA TTAATCCGCC TAGTTCAGG  
19001 TGCTACAGTC CCAAGATTTT TTTCTTTTTA ACAAATTTAA TATAGGTAAC  
19051 ATGACTAGAA TTGTAGTCAA AGAATATTGG AACCTTGGA CTTCACTATT  
19101 TGAACCTTAT TTTGAAATAT AATTTGTTAT ATTATAAAAA TATTATAATA  
19151 TATTGCACCT GGAAGTTAGG GGCAGTTTTT TTTAATCTC TTTGTATCTG  
19201 CTACACTGTA AAGTGTCTAT TATGTAAAAA ATTCTTAATA GAAGTCTTCA  
19251 GTTGTAAGT CTGCTGTACA GACTTTAGAT CAGGGATTGG CAAACTATGA  
19301 GCCATGTGCC AAATCCTGCC CTTACCTGT TTTGTAAATA AAGTTTATC  
19351 AGAACACATT CAGACTCATT CATGAACATA TTGTCTATGA TTTATTTTCT  
19401 GCTACTATGG CAGAATTGAG TTGTTGCAAC TGTGTGGCAT CCAAAGCCTA  
19451 AAATATTTAC TCTCCTGGCT CTTTGCCAAC CCGTTTTAGA TTATGAGCAC  
19501 TTTGGCATTA TTATGTTTTT GTTTTCTTTC TATAGCACAC AGTAAGATGT  
19551 TCTGCCCA CTTGTGCATA TTTATGGGTT TATTCAAGGA TTTATGCAAG  
19601 TGTAGCTGCA AGAAAAAAC CTAGAAGTGA ACTTGCTAGG TTGAAGAGCA  
19651 TCTGTGTATG TTAAATTTTG TTAGCTTTCG CCTTCCCAA GGGATTATTC  
19701 CATTTTCATAC TTAACTACT AATTTTGTGA TAGGACTTCT TTCTCCATAG  
19751 CTTTGTCTAAA TTAATGCATT CACACACTTC ATCTTTACTA ATCTGATAGA  
19801 GGGAAATGAT ATTGTGGATT TGATTTGCAT TTCTTTTAT GTGTTAGCTT  
19851 GAGCTTATTT TCATATTTAA AAGCCAATTG TATTTCTTTT TCTTGAGCTA  
19901 TCTTTTAAATG TCCTTCTGA TACATTTCTG AAGTCTGTGA TACTCATATA  
19951 AGATATATGG TGAACATGTG TCAAAGATTT ATTTGACTCT AATGAGGGAA  
20001 CCCGCCTGAT GACAAGGCTG ATTGAGAAGA GGATGTGTGA GATGAAGTGT  
20051 ATATCATCAG TGAAAGAAAG CAAATTTCTA CAGGGCAAAA ACAAAACCAC  
20101 AACTCTAAGG GTTATTGTTT CTACTGGACA GAATTCATTT GCATTTTACC  
20151 AGATAAAAT TACTATTTT AATTTATCTT TTACAAATCA TTTTCTAATT  
20201 TTACAGAGTC TATTCCCTAA TCAGTAGTAA ATAGTCTTCA AAATTTCTCCG  
20251 CAGCGTCAGG TGACTATTAT GCAGGCTAAT TGTTGACACT CGGGCTTGAC  
20301 TTTAAGAGAA CATGCCATA TCTTTTGGCC TTACTTCCAA GTTTTGGATA  
20351 ATTTTCTTAA ACACATTTT CTCTAATTGC AATGATTTCA AGTGATATTA  
20401 TTTCTTTTTT TTAAATTTT TTAATTTTAA TTGATCACTC TTGGGTGTTT  
20451 CTCGGAGAGG GGGATTGGC AGGGTCATAG GACAATAGTG GAGGGAAGGT  
20501 CAGCAGATAA ACATGTGAAC AAAGGTCTCT GGTTCCTTA GGCAGAGGAC  
20551 CCTGCGGCTC TCCACAGTGT TTGTGTCCCT GGGTACTTGA GATTAGGGAG  
20601 TGGTGATGAC TCTTAATGAG CATGCTGCCT TCAAGCATCT GTTTAACAAA  
20651 GCACATCTTG CACCGCCCTT AATCCCTTTA ACCCTGAGTT GACATAGCAC  
20701 ATGTTTCAGA GAGCAGGGGG TTGGGGGTAA GGTTATGGAT TAACAGCATC  
20751 CCAAGGCAGA AGAATTTTTC TTAGTACAGA ACAAATGGA GTCTCCTGTG  
20801 TCTACTTCTT TCTACACAGA CACAGTAACA ATCTGATCTC TCTTTTCCCC  
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20901 TCTCAATGAG CTGTTGGGTA CACCTCCCAG ACAGGGTGGC GGCCAGGCAG  
20951 AGGGGCTCCT CACTTCCCAC ACTGGGCGGC CGGGCGGAGG CGCCCCCAC  
21001 CTCCCAGACG GGGCGGCTGC CGGGCGGGGG CGCCCCCAC CTCCCAGACT  
21051 GGGTGGCCGG GCGGAGACGC TCCTCACTTC CCAGATGGGG CGGCTGCCGG  
21101 GCGGAGGGGC TCCTCACTTC TCAGATGGGG TCGCGGCTGG GCAGAGGTGC  
21151 TCCTCACCTC CCAGACAGG TGCGGCTGG GCAGAGACGC TCCTCACCTC  
21201 CCAGACGGGG CAGCCGGGCA GAGGCGCTCC TCACATCCCA GAGGGGCGG  
21251 CCGGGCAGAG GCGCTCCCCA CGTCCCAGAC GATGGGCGGC CGGGCAGAGA  
21301 CGCTCCTCAC TTCCTAGACG GGATGGCGGC GGGGAAGAGG CGCTCCTCAC

FIGURE 3G





Attorney Docket No. CL001163  
Application Serial No. 09/804,472  
Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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2351 TTCCTAGATG GGATGGCGGC CGGGAAGAGG TGCTCCTCAC TTCCTAGACT  
21401 GGGCGGCCGG GCAGAGGGGC TTCTCACATC CCAGACGATG GGCAGTCAGG  
21451 CAGAGACGCT CCTCACTTCC TAGTACAGGG TGGCGGCCGG GCAGAGGCTG  
21501 CAATCTCAGC ACTTCGGGAG GCCAAGGCAG GTGGCTGGGA GGTGGGGGTT  
21551 GTAGCGAGCC GAGATCACGC CACTGCACCTC CAGCCTGGGC AACATTGAGC  
21601 ACTGAGTGAG CGAGACTCCG TCTGCAATCC CGGCACCTCG GGAGGCCGAG  
21651 GCGGGCAGAT CACTCGAGGT CAGGAGCTGG AGACCAGCCC GGCCAACATG  
21701 GCGAAACCCC GTCTCCACCA AAAAACACAA AAACCAGTCA GGCGTGGCGG  
21751 CGCGTGCCTG CAATCCCAGG CACTCGGCAG GCTGAGGCAG GAGAATCAGG  
21801 CAGGAAGGTT GCAGTGAGCC GAGATCGCGG CAGTACAGTC CAGCCTCGGC  
21851 AACAGAGGGA GACCGTGGA AGTGGGAGAC GGAGACGAGG GAGAGGGGGA  
21901 GACCGTGGA AGCGGGAGGT GGAGACGAGG GAGAGGGAGA GGGATTATTT  
21951 CTGTATGACT TAATAATGAA TTTCTAAGAG GTCATTAGC TCACTGTTGT  
22001 CTCTTCTAAA ACATACTCAT CTTTCCTTTT CTCTTCTGTA GGAACCTATT  
22051 ATACAATGAC AAATGGAGGC AGCATTAACA GTTCTACACA TTTACTGGAT  
22101 CTTTGGGATG AACCAATTCC AGGTGTTGGT ACATATGATG ATTTCCATAC  
22151 TATTGATTGG GTGCGAGAAA AATGTAAAGA CAGAGAAAGG CATAGACGGG  
22201 TAAGTGTTTT TAGTAAAAAT TTTTAAAAAC ATAGTGATA ATTAGATCTT  
22251 TTAATAATAT ATTTCTGCCA ATGATCTCAG GCTGCCAAAT GTTTACATTT  
22301 AATATAAGTA AATGTCTACA TTTCATATGT GGTACATGTT TTTTCTTTT  
22351 TCTATGTTTA ATTTTTTTAG TTTACTTATA CCCTGTAAC TCCAGAAAG  
22401 GATTTCAGGT AGCTAAAAA CAAAGAAATA CAATAAGAA ACAAAAATAAG  
22451 AAGGAAAGGG AAAAATACAG CACAGGAGTT GGGGGGAAGA ACAAGCCAAG  
22501 TTCCAGATAT GGAGTCAGC ATGATTTTGG GCTTTGAGCA GCCCACCAGC  
22551 TAAGGCAAAA AAGGAACTC ATTGCATAGC TCTTACCTAT GGAAAAAGAA  
22601 GAAATCTACT GGGGGCAGAT GGTCTTGTGG GATTTTGCTG TTTTCTTTTA  
22651 TCTCCTTTCC CAGCATTGA TTCTGAGATA TTTCTCAATT TGGCTCCCA  
22701 ATAAAGCTTA TTGAGTGTG TAATGGTTTA CTGTTTTTTT TAAAAATGGC  
22751 TTTAACATAT AAAAGTACAA CTTATGGATC CTTTTTGTTT GTGGTCGTGA  
22801 CTTACTGATA ATATAATCCA AAATACATT TTTATTTTGT ATTTATTTAT  
22851 TTATTTTGA GACGGAGTCT CAGTCTCTG CCCATGCTGG AGTATAGTGG  
22901 TGTGATATTG GCTCACTGCA CCCTCCGCCT CCTGGATTCA AGCGATGCTC  
22951 CTGCCTCAGC CTCTGAGTA GCTGAGACTA CAAACGTACG CCACCATGCC  
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23051 GAGGTCGGGG GACTGTCGCC CATTCTGTG CCCAAACTGG AGTGCAGTGG  
23101 TGCAATCTTG GCTCACTGCA ACCTCTGCCT CCCAGGTTCA AGCGATTCTT  
23151 GTACTCAGCC TCCTGAGTAG CTGGAATTAT AGGTGTGTGC CATCATGCCA  
23201 AGCTAATTTT GTATTTTGA GTAGAGATGA AGTTTCGCCA TGTTGGCGAG  
23251 GCTAGTCTCA GACTCTGGC CTCAAGTGAT TGGCTGACCT CAGCCTCCCA  
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23401 CAAATTATAA GCTTCCATAT TAATATATAT GTGTGTGAAC CTGAAATTCA  
23451 AATTTTATTA TATTGTTTAT GAAAGGTACA GCCTCTGAGA TTCATCAGAT  
23501 GGTATTTACC TTTAGGCAT ATCTAAAAAT AAAATACAGT ACATGAAATC  
23551 CAGTGCTTTA ATCCAGTGAT TCTTAAACTT TTTGCTCTCA GATCCCTTT  
23601 AAACCTCTAA AAGATATTGA AGAGCTCCAA GGAGGCTTTG TTTACGTGGT  
23651 TTTTATCAAT GGATATTTAC CATATTAGAC ACTGAACTG AGGATTTTAA  
23701 AAAAAAATAA TTCATTTAAA AATAACAGTA ACAAACCCA TTACATGTTG  
23751 ACATAAATAA CATTTTTACG AAACATATAT TTCAAAATTT AGTGAGAGAA  
23801 TGACATTGTG CTACATTGTG TATAAATCTC ATTATTGTCT GGCTTAATAA  
23851 AACACTGCTG GATTCTCATA TCTGCTTTG NNNNNNNNNN NNNNNNNNNN  
23901 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
23951 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24001 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24051 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24101 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24151 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24201 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24251 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24301 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24351 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN

FIGURE 3H





Attorney Docket No. CL001163  
Application Serial No. 09/804,472  
Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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24401 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24451 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24501 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24551 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24601 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24651 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24701 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24751 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24801 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
24851 NNNNNNNNNN NNNNNNNAAA TATTGATTCA CTGATTTATG TGGATCTTTT  
24901 AAATGTTGAC ACTTATATA TATAATACAA TATTTTAAAA ATCACATTG  
24951 TTAATTTTAC CTTTGATCTA TTCAGAAAAG ACTCTAAGTA TTGGGAACCT  
25001 ATCATCTCA CAGTGATAGA TACAAGTTTC CTAAAATTCT GATTTTACT  
25051 GGAGAGCTCA AATTCTATCA TTGGAAACAA ATACACATTT ATTTAACTTA  
25101 AAAATGACAG GATTACTTGG TTTTCATTATT GAGAAAATAC CTGTCAAATT  
25151 CCCAAGTCTG GAAAACCATG GTTTGATGTC ACTCTTTCAA GTAAAAATGG  
25201 CATTCCATGT AAGAAGTGTC TAGTTTATTA TGCAACTCAA ATAAATTACG  
25251 CAAGTGCTTT TCTTTAGGAC ATAACCTCAT ACATACTTCC ACAAGCAGCA  
25301 GATGTGTGTA GTTATGCATA GTTCCTTATG CATGGTTCTT ATTTTCATCAC  
25351 ACAAATATT AAAAGACTC AGTGATTGAG ACGTAGCAGT TTTTACTGCT  
25401 TCATCAAAGA TGCTCTTATT TGAAACTGGC ATAAATATGAT TTATTTATTT  
25451 GATTTTACTG GGAAGCATGG CAGTCAAGAA TGTAATGACT GCCAGTACAT  
25501 TTGAGTGCCA CTGCTTGATT TTTGCTATGG AGTCAGCAAT TTTGCCACTG  
25551 GTTTTGCAAT TTCAGTAAAA ATGTCAACAC AGTGAAAAAG GCACATAATG  
25601 TCTTGATTA TTTTGTAAAC AGTTTTATCT TGCAGACCCC TTGAAAAGGT  
25651 CTCGGGGATC CTCCAAGGTG CCAGTAGACC GTACTTTGAA AATCACTATT  
25701 TTAATCCAAA GTGCCTAGAT CAGACACACT ATAAATCCTG TGTCTTGAT  
25751 GATCATTAGG TAAATACATT TGTACTTAGA AGTATACATT CAGAGACATT  
25801 AACAGTATTC AGGTGGGAT TTAAGTATAT TTTAAAGTGT GGTACCTAGA  
25851 GAGTATCCAT GACACTATGT TCATAAAAT TTAGAGAAAA CTGAGATCAA  
25901 AGGAAACCAA AACAGGCTGG TCATAGTGGC TCATGCCTGT AATCCCAGTG  
25951 CTTTGGAAGG TTGAGGCAGA GGATCGCTGG ATCCCAGGAG TTTGAGACCA  
26001 GCCTGGGCAA ATATGGAGAC TATCTCTACA CAACAAAACA AAAATTAGCT  
26051 GGGTATAGTG TCTTGCCTCT ATAGTCCTAG CTACTCGGAA AGCTGAGGTG  
26101 GGAGGATCCC TTGAGCCTGG AAGTTCTAAG TTACAGTGAA TTATGATTGC  
26151 ACCACTGCCC TCCAACCTGG GTGAAACAGC AAGACCCTGT CACCCTCCAA  
26201 AACAAACAAA AAACACTTTT TTCTCTGAGT ATGTAAATGG TTAGTGATCA  
26251 GTCCTTGAAA TAGTTGCAA TAGTATAGCA ATATATGAAG TAGCCAGTAT  
26301 GTGTCCTAGC TAATTTTATC AATCATCTCT TCCTAGACCA ATCAAATATT  
26351 TTTCAATATT TTGATCCATG CTTATATGAA CAAGATTTT TAAAGCTGGA  
26401 AAATTCCACA CATTATATA CTTACTATTG TTCTTAAAT TAATTTTCTT  
26451 TTTTTTTTTT TAAGCAGAGT CTTGCTCTTT TGCCCAGGCT GAAGTTCAGT  
26501 GGGGCGATCT CGACTCCCTG CAACCTCTGC CTTCCAGGCT CAAGCAGCTC  
26551 TCGTGCTTCA GCACCCCAAG TAACTGGGAT TACAGGCATA CGCCACCACA  
26601 CTGGCTAATT TTTGTAGTT AAGTAGAGAT GTGGTTTCGC CATGTTGGCC  
26651 AGGCTGGTCT CAAACTCCCG GCCTCAAGTG ATCCACCTGT CTCAGCCTCC  
26701 CAAAATGTTG GGATTACAGG TGGGAGCCAC TGCGCCCGGC CTACATTAAA  
26751 TTTTAAAGCC TTTCTATGTC AGTGACATA CCCAACCTAA TTCTTTTTTT  
26801 CCGTGAACCT TTTTGTATG CTTGTAGCCT TCCTACCCCA GATTATTTCTG  
26851 AAGCAAATG TCATCTGTA ATTTCAAATA TTAATTATTC AGTATTTTAC  
26901 AAAATGGTTG CAGTTTAAT GTTGTTCTTT TTTTATTAT TAGCTTGCAAT  
26951 ATTTCTATAG AGAGTTTACC CCACATCAAC CATTTGGAAT ACCTGAAGTA  
27001 AGGGTGGTAC AGGAAAGGGA GAAATCTTGA AATACTAGGT TCCTTAGCAT  
27051 CCTCAAAGTT GACCAATGAG ATTTTTTGCT TGTTTGTTG TTTTTTCTG  
27101 TGTCTTCTGG ACTCATGGAT TTAAGTATAT TTGTGGTTA ATCATCACTG  
27151 TTATTATTCT TATTGATGTT CATGTTATTT TAGATTAGTG GGAGCTTTTT  
27201 TAGTTTGCTA TCTGTGTCCT TCGTCATGTC CTTAGATAAT CCTAATCCTA  
27251 ATCCTGATTC ATCGTAGACA TTTCCCGCAG CAAACCTGGA ATCAGCCATT  
27301 TCTCAAGGAG CTCTCTGATT CCATTGAAGG AAAATATAAT ATAGGTACAA  
27351 TCTAGGCACT AGGTGATACT TGTTACTTCT GGGTTGGCTA TTGTTTCTAG  
27401 CCTCCTAAGT TTATATGACT GTACTAATTT GAATTCATAA CTATGGGACT

FIGURE 3I

FIGURE 3J



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Application Serial No. 09/804,472  
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Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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30501 AGTATAAACT GTTCTTCCCT CCTTCCCTCA ATTTTTTTTC AGGTACCATT  
30551 GGATTTTAAA AAGCATTGT TTCTCTTCTT CAAAAAATCT CCTTAAATAT  
30601 AAGACTAGGA GGCAGAGGCT TCCAAGTCTA GTCTTGGCTC TATCACTTTA  
30651 CGTGTTTATC CAGCTTGGTT GATCTTTCTG GACTCAGTTT CTATATCTGT  
30701 AAAATAAGTG GTTTGGATCA GATGATCAAT AAAGTATCTT TTGATATTAA  
30751 CATCGTAATA AATAGCTAAT ATTTCTTGAG TGCTTCCTAT GTNNNNNNNN  
30801 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNTGGAAGAT  
30851 TATGTTTCTA AGACCATAAA AATTAAAATT TTTGTGGAGA ATAAAGTACT  
30901 GATAATTCTA ATTGGCATGC ATAGTAATTT TATGGCCTCT GTGTATGTAA  
30951 CCCACTGATC TCTTTATGTA AGAAGGACCC AGATTTGACC ATAAATTTGT  
31001 GTATTTTAAA TATTCTCACA ATAAATAAT CTTGATATAT GGTTTTCTGT  
31051 AATTTAAGAA AATATTATTC CTATGAGTTT CAATAATTAT TTCTAATGGA  
31101 CATTAAATTT TAATGAAATT GACATCATTT ATAAGTCTGT TAATTAAGTT  
31151 ATCGATTGAA AATTAGATTT GTGAACCTCC TGCCAAGTAG CTGTCTTTTG  
31201 AAGATATTTT AGTATCTTTT AAACATTGTT TTTTCAAGTCA CAATTAATTT  
31251 GAATGATGTA ACTTTTAAAA ATTCCAAACA AAAATAGCAC TTTTATTGTA  
31301 AAAAATAACT CTTTACAGTT TATAACTAAA ATTTGAAAAT CTTAAATTTA  
31351 TATGTAGTTC ATAAATGACC CTTTATTTAG GAGTCTCCTG CTTTCTACTT  
31401 GCCTTTTAAAC TAGATTGTTC TCGACTCCCA AAAAATTGAC TTAATTTTTC  
31451 TACCATCTCC AACATGTTTT TATAGGGGCA CTGGCCGGAT TAATAGACAT  
31501 TGCTGCCGAT TGGATGACTG ACCTAAAGGA GGGCATTTCG CTTAGTGCGT  
31551 TGTGGTACAA CCACGAACAG TGCTGTTGGG GATCTAATGA AACAACATTT  
31601 GAAGAGAGGG ATAAATGTCC ACAGTGGAAA ACATGGGCAG AATTAATCAT  
31651 AGGTCAAGCA GAGGTAAGTC TTGCTTTGTC TCAAGATGAA TTAATAATTG  
31701 ATATAGCAAA ATGTTTCCAA TTCATTTAAT TATAGAACAT ATCACATATT  
31751 AGATGATTAC ATACACATCA AATGGATCCA CCCTCAACAC ATTGCAGCAA  
31801 GAAAGAATTA AGTGCAATAT TGTTTCAAGT AGCTTTTTTA TTAGTTAACT  
31851 GCATAGTCAT ATAACAAATC CTCTGGATTG TGGTGCAAAT ATATTTGAGC  
31901 TGTAGTAGAA AAGAAGTGAT AGTTATTGCA GTAAGATCTG TGTAAGTTA  
31951 CTAAGAAGTC AAGTTATTAA AACTAATATA TTAATAAGAT TGGGAAGTTT  
32001 GAATTATGAA AGTATTATCA AATAATTTAG TAAAATCAAC CTACGTAGAG  
32051 ATACATTGAA GATAATCAGA CATTTTTTAT TGTGGCATTG CAGCATTAA  
32101 ATGATTGATT TACTATGATC TACAAAGAAC ATTTTAGAAC TTAGGATGTT  
32151 ACATGTATAT TTTTACATG ATGACATGGA TATATTTTTT AAATTTTGT  
32201 TTAGCTGAAC TTTAGAGCTA AAAGGTATAC ATTTGCGGTA AGATGAGTAG  
32251 TATGCTGTTT CTCACCTGGC TTAATTGAAT TGAGTTTAAT GATCTGGAAA  
32301 GTTGACAGC AATGAAATCT GAGTGGTGAT GCAATTTGTT TCCACTGTTT  
32351 CCAAAAAGTG GTTTGTAGGC AGAGATTGAA GTATAGCTGA GATGTGTTGG  
32401 TAACAAGACT TTAGGGATTA GGAAAAAGAT TAAATGTGCT CAGGGTTCCT  
32451 TGGTATATGT AGGCATTAAT TTTTGGACTC TACTTAAATA TTTTGTTCAT  
32501 ATAAAGTTTT TATTATTGTG GAAATAAACC AGGAGACTTT TACACATTTT  
32551 ACTGAAGTTT CTTTCTTTTC TTTTTTTTTT TTTTTTTTTT TGGCCGGTGG  
32601 GATGGAGTCT CACTCTGTTG CCCAGGCTGG AGCGCAGTGG CACGATCTCG  
32651 GCTCCCTGCA ACCTCCGCTT CTGGGGTTTA AGCGATTCTT CTACCTCAGC  
32701 CTCCCAGTA GCTGGTATTA CAGGCGTGCG CCACCATGCC CAGCTAATTT  
32751 TTGTATTTTT AATAGCAACG GGGTTTCACC ACATTGGCCA AGCTAGTCTC  
32801 GAACCTCTGA CCTCAGGTGA TCCACCCGCC TCAACCTCCC CAGTGCTGGG  
32851 ATTACAGGCG TGAGCCACCA TGCCTGGCCG TTTACTGAAG TTTCTTATGA  
32901 CAAGCATTTG CATTAGAGGT GCAATGTAAA TTAAATTCAT ACTCTCGAAC  
32951 TATTTTCTTT TTAGGTCCTT GGTTCCTATA TCATGAACAT CATAATGTAC  
33001 ATCTTCTGGG CCTTGAGTTT TGCCTTTCTT GCAGTTTCCC TGGTAAAGGT  
33051 ATTTGCTCCA TATGCCTGTG GCTCTGGAAT TCCAGAGGTA AGCCAAGTAA  
33101 TATTTAGTGT CATTAAACAT TATTATGATG CTTATCTTTT TGACCTTAGT  
33151 GATAATAAAA GTTGGCTTTT CTGGAGGGAG GGGATAGTTT GTTCATAATA  
33201 TGAAAAAAA ATTTTTTTAA GTATAAGCTG ATGGTAGACA TCATTGAAAA  
33251 ATATTGTTCC CCATAGTCAT TTGGTCATTT ACTGTGAAGG CTGATTTTTT  
33301 TTTTCTCTCA CCATAATT CACACATGAC TAGGCAAAAT TTCAGACTAT  
33351 TTAGTTAAAC ATCAAGAGCC TGGAAGAAGT ATCTTGTGAC CTAATGTTCT  
33401 TTGACGGGTT AGTTGTTACT TTGCTGTTAT GACCCTGAAT TTTTTTTTTT  
33451 TGAGACTGAG TCTTGTGCTG TCGCCAGAC TGGAGTGCAG TGGCGCAATC  
33501 TCAGCTCACT GCAACCTCTG CGTCCCAGGC TCAAGCAATT CTTGTGTCTC

FIGURE 3K



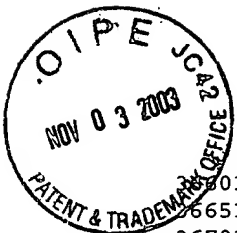
Attorney Docket No. CL001163  
Application Serial No. 09/804,472  
Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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33551	AGCCTCCTGA	GGAGTTGCGA	TTGCAGGCAC	CTGTCACCAT	GCCCTGCTAA
33601	TTTTTGCAAT	TTTTTGTTTG	TTTTTTTTTT	TTAGTAGAGA	TGGGGTTTCA
33651	CCATGTTGGC	CAGGCTGGTC	TCAAACCTCT	AACCTCAAGT	GATCACCCGC
33701	CTCAGCCTCC	CAAAGTGCTG	GGATTACAGG	TGTGAGCCAC	CACACGTGGC
33751	TATGACCCGT	ATTTTGATTC	ATTCACCTTT	TATAATTACC	TTTTGATTAG
33801	ATAAGTTAAT	TATTCCTGAA	TTTGGCCATT	TTATGCTTTG	AGAAAGTAGT
33851	TAATCACAGT	GGGTCAACAG	TACAAACTTT	TGGGTTTTAT	TTTTCATCAC
33901	AATAAAGTAG	AGTTATACAT	AGGATTGATT	GAACCTGATT	TGAACCTATC
33951	TCTTCTCTTT	TATTTTTCTG	GAGTTAAATA	AGTTACCAAC	TTTTTCCTAA
34001	TACATTTCTT	TTTAAATGGA	AATTGTATTG	ATCCTTTAAG	TTTGTATTAA
34051	GAATATCTTT	CATAAAAAAG	AATATCATGC	AGTATATAAC	AGTTGTTACT
34101	CATTCTTGAT	ACATAAAAAA	CTATTGCACA	TAATTACAGG	ACCTCAGAGA
34151	AAACATAATA	TTCTTATTTT	TAACATAATG	GCCAAAATAT	ATTTAAATAA
34201	TTATGCTTAT	TTTTACAACA	GAAATATTCA	AATTTGCCCT	TTTTTTGGGT
34251	ATGTAATTAT	AATCCTTATA	ATTAAGGTCT	GTATTCATTT	TAACATGGCC
34301	TGATATTTTG	ATTTTGGCCT	GAGATAGTGT	TGCCCTCTCT	CCTTCTCTGG
34351	GTAGAGAATT	AGATTATAAT	ATCAATTTAT	TATATGTAGC	ATAATAGGCA
34401	AGTTTTTCGAA	AAATTAACCT	TAAATTTTTC	TGTAGACTGC	TAAAATTTGC
34451	AAGGTTGTTT	TTGTGCATAA	AACAAGAAAA	TAACCTGGAT	TCGTTACATT
34501	CTCATGTTTC	TTAAAGGACA	TTAAGCTGCC	TTAATCTTTG	CCTTGTTAGT
34551	TAAAACCTAT	TTAAGTGGAT	TCATCATCAG	AGGTTACTTG	GGAAAATGGA
34601	CTTTAATGAT	TAAAACCATC	ACATTAGTCC	TGGCTGTGGC	ATCAGGTTTG
34651	AGTTTAGGAA	AAGAAGGTCC	CCTGGTACAT	GTTGCCTGTT	GCTGCGGAAA
34701	TATCTTTTCC	TACCTCTTTC	CAAAGTATAG	CACAAACGAA	GCTAAAAAAA
34751	GGGAGGTAAG	TGTCTTTTGT	AGTTAATTGT	ACTGAAAAAT	ATATATTATA
34801	TAGTATTTAT	TTAAGTAAAG	AATTTCTTAG	TGTAAAAATA	ATAAATTCTG
34851	TATTCAGATA	AAAAATTTTG	AGATTTGTGC	TTCTGTTTTT	CCTGAATAAT
34901	CTATAACATC	TTTCTAGAAT	CCATTCCCAG	TGCTGCTCAG	TTCTGCTTAC
34951	ATTTTAGAGA	AGCTTTAGAT	AGACAGCTGG	TGTCCATTGG	GTTTCAGCTG
35001	CATTTACAGA	AGATCTTCCT	GTTATCACTT	TACCTTACAT	CTTTCCTCTT
35051	CTGAAGTGTT	TTCTAAGCTT	AGCTTTGTGT	TTCACTCTTA	CTTTCAACAT
35101	TAAGAGGTTG	GGAAATCTTA	ATAGCTATGT	TTTCCTCCTG	GAGGCAGTGT
35151	CTGGTGCCAG	TGTAAGTGGT	GTGTGATATG	AAAAATGCTA	TCCAGTGCTA
35201	TGGGGAAGTT	CTGAGGGCCT	TTAGAAGCTC	TTGAAGTTTA	AATCAGAAAT
35251	TCACATTAAA	GAGATTACAG	GAAATCCTTT	TCATTTGATT	GTTTAAGGCA
35301	ATTTCCCTTA	CCATTTCTTT	AGGCCAGCCT	GAGATCTTCT	ACAAGACCTT
35351	GAAACCTTAT	ATATATTATG	GATTTCCCTCT	GATGTTTCCA	TATTGCTCTG
35401	GGCATTTTCC	TGAATCCTTT	ATATTAGCTC	TAGACTTTGT	GAGCCCAGTC
35451	CCTTCCCTAT	TTCCAAATCT	AAATCTACAG	CCCTAGATGG	TACAGAGATC
35501	TTTGAGTTTT	TAAGATATGA	TTTTTTGAAA	AACATCTCAT	TAAATACTGG
35551	CAGAACCTTT	TCATCTTGTT	GAGTTTTTTA	ATGTACTGTA	ACCAAAAAAG
35601	TAGAATATTT	TATCAAACCT	TTTAATCTTC	AATTGAAATA	ATTCTAGTAC
35651	ATTTTAATGT	TCGCATTAAA	ATATTGTCCCT	TGCATTGGAC	GTAGATATCC
35701	CAAAAGTGGA	ATACTTCAGA	TTGTCGTAGT	TTCACTCTCT	AATAATTGTG
35751	ATTTCCAGTAC	TTTATAACAA	AAATAGCTAG	CATTATTGAT	TACTTCTGT
35801	GTATCTGGTA	CTGTGGCAGA	TACTTTACTT	GGATTTTAAT	ACTTAATTTC
35851	ACAGTAATTT	AGTAATATGG	CCCTGTATAT	CTCATTTAGT	GATTAGTAAA
35901	CTAGGGCTGA	AAACAGCTAA	CTAACTTGCC	CGAGACTACA	TACCTAGTAA
35951	GTGGTGGAAC	GTAGGTTAAA	ATTCATTTTT	CTTTGACTTC	AAAGTCTGTG
36001	GTCTTACCTA	CTTACATTAC	TGCCCTTACG	ACTATGTGGG	TATATATTTG
36051	TGTGTGTTCA	AAACAAACTC	AAAACCATCC	TGTAGCGTAG	CAAGTTAGTG
36101	GCTAAGATGA	AGCTAGAGCA	TTTGCCCTCT	CAATTCAATT	CCATTACTTT
36151	CTGTTGTACC	TTTATATTTT	TTGGTAAGAC	TTTTACTTAT	TCTAAGTTCA
36201	AAAAATGTAA	TTTATTAGAT	GTTTGAGAAA	TTAAGTTTAC	CTAAATTTTA
36251	ATGTTTCATAC	TGTAGTGATT	AGTTAATGTT	TAATACGTTG	TTATTCTGTC
36301	ACCTTAGTGT	ATATATAAAT	GGCAAGAATT	CACGGTTAGT	TGAAAGCATT
36351	AAGGTCCCAT	AGTTTTGTGT	AGACAAGAGG	GGAGAGCGTT	GATATTTTTA
36401	AATTAAATGC	TTCTTAGATA	CGTATGAAAT	GGATTAAAAC	ATGTATATGA
36451	GTTATAGATA	CCTAGGTGTT	AGTTTGTTTG	TAAATTCAGG	ATCAGGACAT
36501	TCAAATAAAT	ATGTTTGCTT	TCCTCTTAGT	GGAGGAAAAA	AAAAAGAAGC
36551	TAAATTTGCT	CCCTTTCCTC	CCCAAATAAG	CAGAGTCTAC	ATTTAATGCT

FIGURE 3L



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Application Serial No. 09/804,472  
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36651 CAACAATTG ATAAAAACAA ATATTTATTT ATTTTAAATT CACCAACTT  
36701 TTATAAGTA TTTACTGGTG CCAGGCACTG TTCTAAAGCA CTCTGTATAT  
36751 ATTTACTCAG TCCTTAAGAG CTAAGTAATA TTATCACGTT TCCATTTTAG  
36801 AGAAACTGA GGCACATATA GGTTAGGTTA TCTACCCATA GCCATACAGC  
36851 TAGTAAGTAG CAGAGCCATG ATTTCAACAC AGCAGCCTGA CTATGGAGTT  
36901 CATGATCTTA ACCATTTACA GCTTAATTTT TATTATTTAT AATTTCTCTT  
36951 CTGGAAATGT AACAATTGAC CATTTGAAGA AATACTTTAG GTAGCTTTGG  
37001 ATATTTGCTG TATTAAAGTA GTGAAAGTAA TACAGACACT TGGCTGGGCG  
37051 CGGTGGCTCA CGCCTATAAT CCCAGCATTT TGGTAGGTTG AGGCAGGCAG  
37101 ATCACCTAAG GTCAGGAATT CGAGACCAGT GTTGCCAACA TGGTGAAACC  
37151 CCGTCTCTAC TAAAAATACA AAAATTAGCC GGGCGTGGTG GCAGGCGCCT  
37201 GTAATCCCCA GACTCTCGGG AGGCTGAGG AGGAGAATGA CTTGAACCCA  
37251 GGAGGTGGAG GTTGCAGTGA GCTGAGACGA CGCCATTGCA CTCCAGCCTG  
37301 AGAAACAAGA GAGAACTCT GTCTCAAAAA AAATAAAGGA ATACAGACTC  
37351 TTAGAAAAAT AATTACAAAT AAAACCCTAG TGAAATTATA GGTATAGTTA  
37401 GGTATAGTTG GCTTACAGGT GGGAAGTAGA CCATTACCAA CTGATAGACT  
37451 GGGGAGCTGG AGAGAGGACA CGGAAGAGTG TCCTTGGATT TTTCNNNNNN  
37501 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
37551 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
37601 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN  
37651 NNNNNNNNNN NNNNNNNNNN NNNNNNNNNN NAAAAATTGC TATATTCAAT  
37701 GCCTCCTCCT CTTTACACCC TATTCACATT AGTATATCTG GCAAAAATTT  
37751 TTTTAACTG AATGGTAAAT GCATGACTGA CCTTTCAATT AAAGCCAGGA  
37801 GAAAGAAACA AATCTTAATA GAAGAAATGA ATAGTTACCC TTTGCTTAGG  
37851 GAGCAAGGAA ACATGCAAGT TAAATTCAGA AAATCCATTT GGAAAATTCA  
37901 AGTAACATGA AGAATTTTAA TTTGGTATGT TTGAATTTCT ATGAAATTAT  
37951 GAAATAAGCC ATATCCTCTT TCTAGGTGCT ATCAGCTGCC TCAGCTGCAG  
38001 GGGTTTCTGT AGCTTTTGGT GCACCAATTG GAGGAGTTCT TTTTAGCCTG  
38051 GAAGAGGTAG GTGAAAAGAA TACAACAATT AAAATTATAT ATAATTACCA  
38101 TTACAATAT ATTTACACA TTTCACTTTT GTAGGTGATG TAATAGGTAG  
38151 AGACTTTGTT TTCAAATTTA TTTTCTAAA GTTGTTTTCC ACTCATTTCT  
38201 AATAAAAAGT AAATGTTATT CATGCTCCAT ACCTGGAGGA AACTTTTAA  
38251 AAATTTATTA ATGTATGAAT GTTAGTAATT ATTTAAATC TAACTTTGT  
38301 GACATATTTA AAAGTAAGAA GATGTGAATT TGACTTAATA GAGGACATGT  
38351 GAAACAATCT ATTTCCATTG GCTAAATCTT GTATTTTATG TAGAGATGGA  
38401 ATTTACCATT GTTGCCAGG CTGTTTTTTT GTGGGGTTTT TTTGTTTTGT  
38451 TTTGTTTTGT TTTGTTTTT GAGACGGAGT TTCACTCTGT TTGCCAGGC  
38501 TGGAGTGCAA TGGCGCGATC TTGGCTCACT GCAACCTCCG CCTCCAGGGT  
38551 TCAAGTGATT CTCCTGCCTC AGCCTCCCAA GTAGTTTTTG TTTAAAAAAT  
38601 TTTAATCAAT TCCTATGTTG AGTTTTAAAG TTTTCCCAT GTGATTATTT  
38651 CTGATACAGT TAGTGATGTT AAAGAAAATA ATTTTAGTGA CTTCACTGGA  
38701 TTATTTTGT TTTGTTTTCT TAATAGGTGT TTAAGACTTT TCTTTTACA  
38751 TAAAAATGA ACCAGGAATT TTTTTTAAAT TTTTTTTGAC AAATAATAAT  
38801 TGTTTTTGT TATGGGGTAT AATGTGATGT GTCTATACAT GTATACATTG  
38851 CGGAATAATC AAATCAGAGT GATTAGCAAA TCCCTCAAAT ATTTATTATG  
38901 TCCTTGTTGT GGTGAGAACA TTTAAATCC TCTTTTAGCT ATTTTGAAAT  
38951 ATATAATACA TATTATTAAC TGTGGTCATC TTAGTGCA ATAGAACC  
39001 AGAACTTATT CCTCCTCTGT AAGTTCATAC CCGTTGACTA ATGTCTCCCC  
39051 TTTCCCTGTT CACCTCCCA ACCCCTAGCC TCTGGTAACC CCTATTCTAC  
39101 TCTCTACTTC TATGAATTTA ACTCTTTTAG TTCAAGATGT TTTTAAATGT  
39151 ACTTTTTTCT TTTAGTTGTT TGTATTCTTT TTTTTTTTTT AATGTAGAAG  
39201 AGGCAAATTA AATGCATTAT AAGTTAACAG GAGTTGGTGA TGGTACATTT  
39251 ATTTTTAACT ACCATGATTG AATTGAATGT GAACTCATTT TTGAATATAA  
39301 AACAGCACTA GGTATTCTAT TAGTATTTAT TAGACATTTA TGATCAATTG  
39351 ATACTGTCAA TTTGTAATGA TGATCACCAT CTCAAATAA AATAATAACA  
39401 TCAATTTTTC TTATTACAGT AAAATCCATT ACATGTAAAT TCTAACTACA  
39451 GCAAAAATTTA GAGCTAGGAT ATTTACCATT CAAGTTATAA TATATCAGAA  
39501 ACATCTTATA AAATTATAGC ATTAATTTTT CTTTTCTTTT TCTTTTTTTT  
39551 AGGTTAGCTA TTATTTTCTT CTCAAACTT TATGGAGATC ATTTTTTGCT  
39601 GCTTTAGTGG CTGCATTTGT TTTGAGGTCC ATCAATCCAT TTGGTAACAG

FIGURE 3M



Attorney Docket No. CL001163  
Application Serial No. 09/804,472  
Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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39651 CCGTCTGGTC CTTTTTTATG TGGAGTATCA TACACCATGG TACCTTTTGT  
39701 AACTGTTTCC TTTTATTCTT CTAGGGGTAT TTGGAGGGCT TTGGGGAGCC  
39751 TTTTTCATTA GGGCAAATAT TGCCTGGTGT CGTCGACGCA AGTCCACGAA  
39801 ATTTGGAAAG TATCCCGTTC TGGAAGTCAT TATTGTTGCA GCCATTACTG  
39851 CTGTGATAGC CTTCCCTAAT CCATACACTA GGCTAAACAC CAGTGAACGT  
39901 ATCAAAGAGC TTTTACAGA CTGTGGTCCC CTGGAATCCT CTTCTCTTTG  
39951 TGACTACAGA AATGACATGA ATGCCAGTAA AATTGTCGAT GACATTCCTG  
40001 ATCGTCCAGC AGGCATTGGA GTATATTAG CTATATGGCA GTTATGCCTG  
40051 GCACTCATAT TTAAAATCAT AATGACAGTA TTCACTTTGT GCATCAAGGT  
40101 AAGTGCTAAT GTGAGGTGAT ATTTGGGTAA TTTTGGCATG TTCAAACTT  
40151 ATATGTGGAA TGAGAGAGGT TGTTGTTTCA TAAATGACTG AAAAAAGTAC  
40201 TTATCTTTTG TTATTAATT TAAGTAATGA AAAAGATAAT TCCTTAGCAT  
40251 ATATTGTTGA CCATGTTATC TGTTGCTATT TAACAAATTA CCCCCAAAA  
40301 CTTAGCAGCT TAAGGTAAC ACTTATTTTG TTCTTGATAT TGAGTCAACG  
40351 ACTTGGGAAG GGCTCAACTG GGCAATTTT GCTTGTGGTC TTTCATATAG  
40401 TTGTTATTAG ACATGGCGAG GGCTAATCAT CTCAAAGCTT CTTTTTTTCG  
40451 TTTCTTTTTT AAAAACTGT TTTTGTGGAT ACACAGTAGC TATATATAGT  
40501 TTTGGGGTAT ATGAAGTATT TTGATAGAGG CATGGAGTGC ATAATAATCT  
40551 CAGGGTAAAT GGAGTATCCA TCACCTCAAG CATTATCCC TTGTGTTACA  
40601 AACAATCCAA TTACACTCTT AATTATTTT AAGTGTACAA TTAAATTATT  
40651 GAATATAGTT CAAAGACTTC TTCATTATG ACTAGCACCT AGGCTAAAAA  
40701 AATTACAGACA CCTGGGCTCC TGGGATCAAT CACGCATACT GTGTCTCTTG  
40751 TGCTCACTCC CGCTGTCTCT CTCTCTTTCT CTCGCTTCCT TTTCTCTCTC  
40801 TCTCTGTGGT TTTCTAGGGT GGTGGCCTCA GGGAATTGGA TTTCTTATAT  
40851 TATAGCTCAG GATTTCCCAAG AGGGCTGTT TTAATGTAGC CAAAGAAGTC  
40901 TTGCAGCGTG ACTTGTTTTA TTCTATTCAT TGAGGTAGTC ACAGAGGCCC  
40951 GACCACATTC AGAGGAGGGA CATACTCTG CTGGGACAAG TGTAAGAGAA  
41001 TTCATGATCA TGTTTTTAAA CCACTTTTAT TAGTTTCCTA TTGCTGCTGT  
41051 AATAAATTAC CACAACCTAA TGGCTTAAAA GCCACACAAA TTTAATATCT  
41101 TACAGTTCTG CAAATCAAAA GTCTGAAACG GATCTCACTG TGCTAAATTT  
41151 AAGGTGTTTC TAGGGCATTC TGGAGGCTGT AGGAGAGAGT CTTGTTTTTT  
41201 GCCTTTTCTG GCTATTAAAA GCTGCCAGCA TTCCTTGGCT CCTGGCTGTC  
41251 TATTTGCATC TTCAAAGCCA GCAGTAGCTG GTCAAGTCTT TCTCTTGCTC  
41301 CATCACCTG ACCCAAACCT TGCTAAATCT CCCTTCCACA TTTGAAAAAC  
41351 CTTTGTGATT ACTTTAGGCC CACGCAGATA AATCAGAAAA TAATCTCCTT  
41401 TTTCAAGGTC AGTTGCTTCG AAACCTTCTT TCTGCCACCT TGATTCCTCC  
41451 TTGCCATGCA ACGTAATGTA ATCACAGGTT CTGGGAATTA AGTTATGGAC  
41501 ATCTTTGATG AGCAATTATT CTGCCTCATA CCAGTATAGG GTATTAGCTT  
41551 GAAAGGACAC TGCAGACTCA GTTAAATTAC TAGATCTATA AATACATGCC  
41601 TTTTCCATC AAGAAATTAA GGCAGCTGGG TCTTATGCCC TGGGACATTG  
41651 CTTCTTTTGG ATTTATAAAA TAACAAAATT TGTTGATTAA TGGTCTATCA  
41701 GTAAATATAA TTTCTTATGT GACTATCAGT GATATATATG GGGAAGCACA  
41751 TATCAGCTTA TTCTTGTTCT TTAAATTACT ACCCTGTAC TTCATGTAAT  
41801 AGTATTGCT AGTGATGATG TGCTTTTACA GATGTAATTT AATGTGGAAT  
41851 AACAGCTTTG TTTCTACAAA ATTAGAGTGG TTTTAGTTT TGAAATAAGG  
41901 TCTCTTTTCT CTTGTCTTAA GTCTGTAGTC CACTGAGTAT CTAGAGTTAA  
41951 ATAATAGAAA AGCCTGGCCA GGCGCAGTGG CTCACACCTG TAATCCCAGC  
42001 TCTTTGGGAG GCCGAGGCGG GCAGATCACA ATGTCAGGAG ATCGAGACCA  
42051 TCCTGGCTAA TGCGGTGAAA CCCCCTCTT ACTAAAAATA CAAAAATTAG  
42101 CCAGGCGTGG TGGCAGGTGT CTGTAATCCC GGCTACTCGA GAGGCTGAGG  
42151 CAAGAGAATC ACTTAAACCC AGGAGGTGGA GGTTGCAATG AGCCAAGATC  
42201 ACACCCACTG CACTCCAGCC CAGGCAACAG GGCAAGACAC TGTCTCAAAA  
42251 AATAATAATA AGAAGAAAAT AATAATAGTA ATAGAAAAGC CTAAACATTT  
42301 TACCTTTTTT TCTTAGGGAA TCAAGTTAAA AGAGCTGTTA AAGCTCTTTT  
42351 TCCTACAATA AGTAAGTGT GGGTAAATCC CAACCTTCTC ACAGTCAGTT  
42401 GAACTACAAG AAGCTGGAGG CAATTGGCAG GCCTTTGTTA AGTCCCACCT  
42451 TTGACTCAGC TCTGGCTGAA GGATCATACC TGGCAAGAGA GTGTAAAAA  
42501 CACTTTGATT TTTTCTATTG TTTATCCTT TAATGATCCT AAGAGACTCA  
42551 AGAGTACATG CCATCATTTT GTGTTTGGCT CATTTCATAT TCAGAGGAGT  
42601 TTATTACTCT TTCAGTAGTT TGTTTGTTCG TTTGTTTGT TTTTGAGACA  
42651 GGATCTCGCC TTTTGGCCA GACTAGAGGG CAGTGTGCA GTCTTGGCTC

FIGURE 3N



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42751 ACTGTAACCT CCACCTCCCA GGTTCACGCG ATTCTCCTGC CTCAGCCTCC  
42801 CAAGTAGCTG GGATTACAGG TGTGGGCCAT CACACCCGCG TAATTTTGT  
42851 GTTTTGTAGTA GAGATGTGAT TTTGCCATGT TGGCCAGGCT GGTCTGGAAC  
42901 TCCTGACCTC AGGTGATCCT TTGGGAGGCC TTGGCCTCCC AGAGTGCTAG  
42951 GATTATAGGT GTGAGCCACT GAACCTGGCC TCTTTCAGTA GTCTTTAAAT  
43001 GATCTTGCTT ATGGTGCTTC TTATCCCTGT TTATTATCCT TATTAAATTT  
43051 AATCAATAAA TATTTTTCTC TTTTAAATG ATTCAATATA ATAGACTTAC  
43101 CTGAGAGATA TAGGTTTCAGT TCAGAGCACC ACAATAAAGT GAATATCATA  
43151 ATAAAGCAAG TCACATAAAA GTCTTAGTTT CTTAGTGCAAT ATAAAGTTTC  
43201 TGTTTACACT ATGCTGTAGT CTTATGTGTA CAATAGCATT ATGTCTTTTA  
43251 AAAAAGTAAT ACTTTAATTT AAAAATACTT GATTGCTAAA AAATGCTAAT  
43301 AGTAATCTGA GTCTTCAGTG AATTGTAATC TGTTTTGCTT CTGTAGGGTC  
43351 TTGCCTTGAT ATTGGTGGTT GCTAGAGGTA GGACTGGCTG TAGCAATTCT  
43401 TAAAATAAGA TAACAGTGAA ATTTGCCGCA TTGATTGACA CTGCCTTTCA  
43451 TGAAAGATTT CTCTGTAGCA TGTGATGCTG TTTGATACCA TTTTACCTAC  
43501 AGTAGACCTT CTTTTCAAAA TTAGAGTCAT CCTCTCAAAC CCTGCTACTG  
43551 CTTTATCAAC TAAGTTTAAAG GAAAATTCAA AATCTTTTGT CTTTTTAACA  
43601 ATGTTTCAAC CATCTTTACC AGGACTGGAT TCTACCTCAA GAAACCACTT  
43651 TCTTTGCTCA TCCATAAGAA GTAACCTCCT ATACATTCAA GTTTTTTAAA  
43701 TGAGATTCTA GCAATTTCAGT CACATCTTTA GGCTACGCTT ATCATTCTAG  
43751 TTCTCTTGCT ATTTCCACCA CTCTGTAGTT ACTTCTTCAA CTGAAGTCTT  
43801 GAACCCCTCA GAGTCATTCA TGAGAGTTGG AATCAACTTC TTCCAAACTC  
43851 CTGTTAATAT TGATATTTTG ACCTCCTCCC ATGAAACGTG AATGTTCTGG  
43901 ATGGCATCTA GAATGGTGAC TACTTTTGA ACATTTTCAA TTTATTTTGC  
43951 CCGGATCAAT CAGAGAAAGTT GTTATCAGTG GTGGGTTTCC AAGTTGTCAG  
44001 GGGCGAACCA TACAGATCTT CAGCAACCTC AACTCTTGCC TTCTCAGAGG  
44051 AAAGAATTCT ACGGAGGGAC ATAAGGCAGA AAAAGAGACT GAGGCAAGTT  
44101 TTAGAGCAGG AGTGAAAGTT TATTATTAAA AAGCTTTAGA GTGGGAATGA  
44151 AAAGAAATTA AAATACACTT GAAAGAGGGC CAAGTGGGCA TCTTGGGAAGA  
44201 CAAGTGCCCC ATTTGACCTT GGACTTAGGG TTTTATATGT TGGCATACTT  
44251 CTGGCATCTT TGCCCTTAT TCCATTGATT CTTCTTTTGG GGTGAGTTGC  
44301 CCACATGCTC AGTGGCCTGC TAGCACTTGG GAGGGGAGTG TGCACAGTGT  
44351 ATTTACTGGA GTTGATGCA TGCTTACCTG AGGTGTTTGT TGCTTACCAG  
44401 CCAAATGTCC CTAGGAGGTC ATATTCATAA ACTCCATGAT TTTGCCTCTA  
44451 AATGTGCATG CTTGAGCCCA CTCACCCAAC TCCTGGGATC TTATCGGAAA  
44501 GCTGCCGATC GCTAGTTTCA GGTGTTTCTA TCTATTGGAA GATGGCCTTT  
44551 CCCTGATGCT GGCTGCAACC AATTATTACT TTAGAGAGAG AGCATGAGAG  
44601 CTGTCTCACC ATCATCCCTT GATGGTTGCC TGACATTCCCT GGTGGGGTTG  
44651 GGAGGATGCC TGTCTGCCC TGCTCATGCC TGACTAGCTA CCTGCTGTAA  
44701 CAAAAGTACT ATCTATGGTA GCTGTAGCCA TAGGAAATGC ATTTCTTCAG  
44751 TAAAACCTTA AAGTCAAAAT TAGTCTTTAA AACAACATGA ATCTCCTTGT  
44801 ACATCTCCAT CAGAGCTCTT GGAAGACCAG GTGCATTATT AGTGATGAGT  
44851 AATGTTTTTAA AAGGAATCTT TTTGTCTGAG CAGTAGGTCT CAACAGTGGG  
44901 CTTAAATAG TTAGTAAACC ATGCTGTAAA CAGATATGCT GTTATCCAGG  
44951 CTTTGTATT CCATTTATAG AGCACAGAGA GAGTAGATTG GCATAATTTA  
45001 AGGATTACTT AAAAAAAG TCTTTGATTA CTCTCAAAAA AAAGTCACGT  
45051 CTCTCACTTT ATATCAACAG CTAATAATGG CCAGGTATTG TGGCTCACGC  
45101 CTGTAATCTC CATGCTTTGG GAGGCCAAGG CAGAAGGATC ACTTGAGGTC  
45151 AGGAGTTAGA GACTAACCTG GGCAACATAG TAAGACCCAT CTCTACAAAA  
45201 AAAAAAAGAA AAAAAAGAAA GCCAGGTGTG GTGGTGACG CCTGTAGTCC  
45251 CAGCTACTCA CGAGGCTGAG TCGGCAGGAT CACGCCAGC CAAGAGACGT  
45301 GACTTCTGCT TTCAGTTGTA CACTTAGAGA CCATTGTAGG GTTCTTAGTT  
45351 GGACTAATTT CAATATCATT GGGTCTCAGG GAATAGGGAA GCCTGAGAAG  
45401 AGGGAGAGAC AGGGGAACAG CCAGTTAGTG GAGCAGTCAG ACCACATACA  
45451 ACACTTATTA AGTTCACTTT CTTCTATGGG CATGGTTTAT GGTGCAGTAA  
45501 AACAACGTGA ACAGGAACAT CAAAGATCAT TAATCACAGA GCACTGTAAAC  
45551 ATATAATAAT AGTGAAAAAT TTCAAAGTAT TGAGAGAATT AGCAAAATAT  
45601 GATACAGAGA CACAAAGTGA CCACATGCTG TTGGAAAAGT AGTGCTGATG  
45651 GACTAGCTTG ATGCAAGGAT GTCATAAACC TCAATTTGTG AAAACTGCAA  
45701 CATGTGTGAA GCACAGTAAC ACAAAGCATA GTAAAACAAG ATATGTCTGT  
45751 ATATCAGTCA AAATATTGGG CAACTCTGAT AAGTTTGTCC ACTTAACATT

FIGURE 30





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GTACCACTTA AGATGAATAG CATCTACCAT TTCCGTCATT TGTAATATA  
45801 TAGGAGGACA TAATCACATA ATCTTGAAAGT AAAAGACAGT GCTTAAACT  
45851 GAATCAGTTA AGTTTTATGA AAAATACTTC ATATTGTAAT TTTAAAAATA  
45901 TATATTTTTT AATTTCATA GCTTTTGGGT TACAAGTGGT TTTGGTTACG  
45951 TGGATGAATT CTATAATGGT GAAGTCTAAG ATTTTACTGC AACTGTCACC  
46001 CAAGTAGTAT ATATTGTATC CAGCATATTG TCCTTTTTTT TTTCTTTTTT  
46051 TTTTTTCATT TCACCATGGA CTAATGAAAA TTTTGTAGG GACTGACATT  
46101 AGGGCACCTT TGAGCTACCT TGAGCTAAAG GAAATAACCC TTGAATTTTT  
46151 TTCTGTTTGG CCTAGAGAAT GTGGTTTGT TTTGTAAGTGA ATTCATGGGA  
46201 TTGTTAAGGT ACAAGATTTT GCTTTAGTTT TATTGTACT AGGATTTTGC  
46251 TATATTAATA CAATGTGAAA AGAATCAAAA GTGTTAGAAA TAAATGCATA  
46301 GAATGTGAAT TTCAGGCATG TGAGTAGAGG ATCTCTGCTC CATAAAGAGT  
46351 TCTGTTGTTG TTATAGGTTT CATCAGGCTT GTTCATCCCC AGCATGGCCA  
46401 TTGGAGCGAT CGCAGGAAGG ATTGTGGGGA TTGCGGTGGA GCAGCTTGCC  
46451 TACTATCACC ACGACTGGTT TATCTTTAAG GAGTGGTGTG AGGTCGGGGC  
46501 TGATTGCATT ACACCTGGCC TTTATGCCAT GGTGTTGCT GCTGCATGCT  
46551 TAGGTAATAT GGCTGTGTCT GCCTGTGTGT GGATGTTTG AAGTCTGAGA  
46601 GAGCCAAGAG AAAGTGGGAC ACATTCTTGC TTAATTGGT GCGGATTGG  
46651 TTGAGTAAAG GAGGGTGCCA GGAGGAGATG TTTTAAACAGA TAAGAAACAG  
46701 TAGTACTATT AGGGTATTAT ACAGTACCGG TTTTCTGTCT TACAACATTT  
46751 GTTAATACAA GAATTTAATG GCATTAGCAT ATTGTAATAT AACTTAATAC  
46801 ACTATGGCAG AAGCCATCTA AGTACAACAT AAGCTTAATT TGAATCCTGA  
46851 CCAAAGATGT CTTTGATTCT TTCATCGTTA AGGATCTTGG CTTACCTATA  
46901 ACAACTATAG CATAATACCT AAGATTAGCA TTGCAACAGA GTTTCAGAGT  
46951 AGGTTTACTT TGGTTCTGAA ATGATTATT GTTAGCCTTA GTAAAAGATG  
47001 TATTTACCCA TGCTCCATCA TCTAAGGTAT ATTTGTAACA AAATGAGAAA  
47051 AGGTAACCTT ATTTTAATGA GAAGAAAAGC AAAATACCTA CATTAAAGTAC  
47101 TTGAGTCTAT TTAATGCTG TTAGGGCAGG AAAAAATGGT TATTGCTTTT  
47151 CATATTTAAA ATATCAGCTA CACTCTGGTG ATAATATTAA TGGTTGCCAT  
47201 TTTGACCAGT TTTGTTTAGT GAATAAAAAAT TATGTGATTA TTGATCTTTA  
47251 AAAATGTAAT ATCAATTAATA AGGAAAGGAC AGACTCATT TCACCAAAGT  
47301 AGCAAGTATT TATTAATGT CCACTTTCTT TTTAGCATTG TGCTAGATAC  
47351 AGTGCATAAT AAAAAAGAA CATGGACCCA ATCTCGACTC TAATCAAGTT  
47401 GAGGAGACAA GATGAACACT GAGAATACAA TAGTGAGGAA TACTAACAAA  
47451 TATATACAAAG GTTAAAGAG TCTAAGTATG GTAGGAATAT AGGGGAAGAA  
47501 AGAGCTGAAG TACTTCAGGA AGAGTAGAAC ATGAGGCTTT ATTTAAAGA  
47551 TTAGCAGAA TTAAGGAAAA GGTGACTTTG TTGAAGATTA TAATGTGAAG  
47601 ACAAAGGAAC GAGGATGGGA ATAAATTTTG TATTCATGAG GCTTTGAAGA  
47651 AATTGACTCT AGAGAGTATA TTTTGGGTAC TTTTGGGAAA TGAAGTTGGA  
47701 TTAGTGAGAA GGAACAGATT ATGAAAAGAC AAGAAACCTG ATTAATGTCA  
47751 GGATGATTTT ATATTTGAAG TTGGTCAGAT TTATGGCAGT CCTGGCTTTG  
47801 CCATTTTTAG TTTGATGACT TTGAGAAAAGT TCCTTCTTGA AGTTTAAATT  
47851 TTCTGTATAT AAAAAGTAAT AACACCTGGT GATCTGCTAG GTTTGTTTTG  
47901 AGGATTATAT GAGATAAAT GCATGCAAAA CTGTTATAAT AGTGCCTGGT  
47951 AAAATAAGTG CCTAGTTTAA AAAACAAGTC TTTGTAAACT GCTTAGGACA  
48001 TGCCTGGTAT AGGGTAGGTA TGTAATACAT AGTAGGTAGG ATCTGTCTCC  
48051 TTGCTATTTT TAGGTAAAAA AACAAAAGGA AGAGCTTCAG CTTAATACAG  
48101 TATGAACCTG CGAGCCCTGG TAGGTTTTTG AGCAAAAGAG CAACACAGTA  
48151 AAAGTAGTAC TTAGGAAAGA TTAACAAGGG AACATGGCTT ATACAGTGGT  
48201 AATGGGGCCT GGAGTCAAGG AGGTAAGATA AAATGGTATT ATAATTAAGG  
48251 AATAGCCAGG CACGATGGCA CATGCATGTA ATGCCAGCTA CTGGAGAGGC  
48301 TGAGGTGGGA GGATCATGGG AGTCCAGGAG TTTGAGACCA GCCTGGGCAA  
48351 CTGAGTGAGA CCCCAAATCC TAAAAAATAC AAAGTAAAAA AGGAATAAAG  
48401 TCATGAGGGC TTGACTGGA TTGATAACAG TGAGAATACC GAGAAAGGGA  
48451 CCATAGGCAG TGTGAACGCA GCTCACTGCA GCCTCAAACC CCAGCCAAA  
48501 CGAGCCTCCC ACCTCAGCCT CCCAAGTAGC TGGGACCACA GACATACACC  
48551 ACCATGCATG ACTACTTTT TTAGTTTTT CTTTTGTAGA GACAGGGTCT  
48601 CACTGTATTG CCCAGGCTGG TCTCAAACCT CTTGACTTAA GTGATCTTCC  
48651 TGCCTTGCC TCCCAAAGTG ATTACAGGCA TGAGCCACAG TGCCTGGCCC  
48701 AAATAGTTTT CTGTGAGTGA ATATTACTTG CATCGTTAAT GTAAATCAAA  
48751 GGCATCAAAG TATTTTACTC TTTTGTAAAA AAATTTAGAG GAGAAATTTA

FIGURE 3P





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801 TTATATTAAT ATTCTACCCA TATATGAGTT TAATTTGTAA ATTGTAGCAA  
48851 AGCATGATGT GCTTTACTAA ATTCCTTTAT AATTAGAATA AGCTTTTATA  
48901 AGGGTGAAAT TATGTCCTTG CTACAGCACT AAACCAAAAT GGCAAAATTG  
48951 TTTTAGTCGG TAAGCTTTGC TTTTAAAAA TATGAAATAA ACAGGTTTTT  
49001 AAAATGTTAT TTTAATAGTC TTCTCTGTTA TAAACAAAAGA AAATTGGTGT  
49051 TTCTCTAGAG CTTATTAAAA GTAGTGATTA TTGTCCTAAA AGAGGAGTAG  
49101 CAGTTTTAGA TGCTAATGCT TTTCCCTGAC TGAGTTCTAT TTGCCATTTA  
49151 GTTTTAACTG CCTAGTGCAA AAATTCTAAT AAAATGTAAT GATGAGGATC  
49201 CTGTCCTTCC TGACCAGTGG GTGCTTACTT TTTTCAGGTG GTGTGACAAG  
49251 AATGACTGTC TCCCTGGTGG TTATTGTTTT TGAGCTTACT GGAGGCTTGG  
49301 AATATATTGT TCCCCTTATG GCTGCAGTCA TGACCAGTAA ATGGGTGGA  
49351 GATGCCTTTG GCAGGGAAGG CATTATGAA GCACACATCC GATTAAATGG  
49401 ATACCCTTTC TTGGATGCAA AAGAAGAATT CACTCATACC ACCCTGGCTG  
49451 CTGACGTTAT GAGACCTCTA AGGAATGATC CTCCCTTAGC TGTCTGACA  
49501 CAGGACAATA TGACAGTGGA TGATATAGAA AACATGATTA ATGAAACCAG  
49551 CTACAATGGA TTTCTGTGCA TAATGTCAAA AGAATCTCAG AGATTAGTGG  
49601 GATTTGCCCT CAGAAGAGAC CTGACAATTG CAATAGGTAC CCTTTCAAAA  
49651 ATATATATAT GTATATATGA GATGGATTTC TGGAAGAAAG GAAAGCAATA  
49701 AGCAGTAACA TTTAATGGGT CGGATTTGTG GGGGCAAGGG ACATTATTTC  
49751 ATGTCCCTTA ACATCTTCTG TTCTTTAAGA AAGGAAGGTA TGCTTCAGTG  
49801 GATGATTTTC TGCTATATAT CACAAAATCT GTATTTTCAGG TTTGCTTTT  
49851 GATCCGGCAT GTACCAGAAA TTGGAGTCAG ATTATTTTCC CACTCAGATA  
49901 AGCCTAGATA AGTTGATCTT GGTTATTCAA AACAGCATGT AATATAAGAC  
49951 CTTAGCTAAA TGCATTCACT CAAATACATT CTTGTATTTA ATAAAGTTGG  
50001 CTTATTGGAA TACAAGTTAT TGAAAATCTC ATCTTCATCA GTCTCTTTCA  
50051 TATTAGAATA ACACGTGTTT GCTTTATCAG TCTTTGGGGT TAGAATTATA  
50101 ATATTAATTT ATAATATCTG ATTTAAAGTG ACAATCACTG AGATTTTAT  
50151 TTCTGATCAA ATGCCAGGT GAAAAAGTAT AACGTATCAG TCCTGTTGTG  
50201 TTTTATGCAG ACTTTCCTGA AAATACGTGT TAAAGGTATT AGCCATAGTG  
50251 TATTTCTTGG AGATAAATTA AACTTTCTAT AGTTCTGTTT CTCTAAATTT  
50301 TGTTTTTCTC TTACCTTAT AGTCCCGCAG TATTGATGAG GAGACCATA  
50351 AGACTTAATA TTTTTTTGAC ACAATCTTAT ATCTCTTCT CCAACCCCTA  
50401 AAAAGTGAAT GAGGATAGGT ACATCAAGCC ATTGCTTTGT TACTCCCCAG  
50451 GTTTTAGTGC CAGACCCTGA ATGGAAGTGT CAAGCCTTGG GCCTGTCTGA  
50501 AAGGTCATTC CTGTGAGCAT ATCATCTCCC TTCCAGCTTA CCTCTGTGGC  
50551 CATTGCAAAA GGATTTAAAA ATAATTTTGG TGCCATTTGA ATGGCACAAAG  
50601 ACCAGACAGT GATGTGGGG GAGTGTCTT CAAATCAAC TGGAACTCT  
50651 TTAATTTGTA AGAACCTTA AGCAGAGAGA GAAAAAAGAA AGGAAAAGAA  
50701 AAAAGATCCT ACAGAGAACA CCCTGTTTCA TTTGGGAACA GGCTACAGCT  
50751 TTGGATTTTT CAAGGCCTAG CATTCCCATC ATTCTAAATT TTAATTAGCT  
50801 AATACAATAG TAGTTGCCAG AGCTGATGAC ATAGTATTTT GTCATGCTTG  
50851 GCTCCGTTCA AGCATTTTAG TTTTTTAGCC ATTACCATGG CTAGACCAG  
50901 TCAAAAGAA TTTTATTGTT TAAGATTCCC ATTATCCTAG TTTTACTAG  
50951 TAGCCAGCCA AAGAAAAGAA AAAGGAGGTC AGAATTTTCG TATTACATA  
51001 GAAATTTAAG GGGAAAAGGC CAGGCATGTT TTTAAAGTGT GGAAATTAAG  
51051 AACTATTCAT TATCCCACTG ATTGTGTGGA TGTGTTTTTT AAAGTTTTGT  
51101 TACTGTCTTG AGAGAGAGAA TATTGAGATA GGACATAATG TTGGTTTAAG  
51151 GGAATGAGGG TACTTTCTGT AGGTGAGGTG CCAAGCCATG TCATCAGAAA  
51201 TGTTAGTCAC ATGACTTTCT AAGCACACCT TAAATGTTTT ACCGTGTATG  
51251 TTTTGTAAA GTTTTAAAT TTTAACTGGG AAAACAGAC CTGTATATTA  
51301 AGTTTTATAT ATATATATA ATTTAAATTT ACATATATAT GTTTATATAT  
51351 GTAACTTTAA TATGGGAGAG ATATATATTT CTATATCTC TATAAAAAAA  
51401 CATATCTATA TATGAAAATT ATGTACGTAA ATGTTAATTT ATAATTAATT  
51451 ATATAAATAT TAACATAAAT ACATTATATA TATAGAAAAC CTAGTGATCA  
51501 GATCTGTATA TAAATTAATA ATGTATGTGT TATATATAGT TACATCATAT  
51551 AATACATATA ATTGATATAT ATAATGATAA ATACTTTATT GAAGGATGAA  
51601 AAAATTTCCA TGCTGTCTCA TAAAATAAGA TGTTGACAT ATGCTAAACT  
51651 AGATAGATTC TCCTGTTTCA TACTAAAGCA GAATGTTGTA AAATATTAAA  
51701 TCCAAATGAG ATGTCTCAGA TTAAGGCCAT TTCAACAGGA ATGCTGAGAC  
51751 TTTAAAAAAA AAAAAAGTCT GAGGCTGGGC GTGGTGGCTC ATGCCTGTAA  
51801 TCCAGCACT TTGGGAAGCT GAAGCAGGTG GATCACTTGA GGCCAGGAGT

FIGURE 3Q



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51901	TTGAGACCAG	CCTGGCCAAT	GTGGTGAAAT	CCCGCCTCTA	CTAAAATACA
51901	AAAAAATAC	ATGGGTGTGG	TGACGCATGC	CTATAATTCC	AGCTACTTGG
51951	GAGGCTGAGG	CAGGAGAATC	ACTTGAACCT	GGGAGGTGGA	GATTGTCAGTA
52001	AGCCCCACCA	CTGCCTCCA	GCCTGGGCGA	AGAGCAAAAC	CCTGTCTCAA
52051	AAAAAAAATA	AGCCTGAATT	ATATCAGCAA	ATGAAAACCTG	TAATGTTGTT
52101	CTCTGTTTCA	GAGGCCCTTG	AATGAATAGC	ACTAAAAATA	TTTTTTAAAA
52151	AATGAAGAAA	ATGAAAATTG	TAATGTTTCT	TATTTAAAAG	GCCCTTGAAT
52201	GAGTAGCATC	AAAAATATTT	TTAAATGGGA	GGCCAGGGTG	GGAGGTTTGT
52251	TTGGCACCAG	GAGATCAAGA	CCAGCTTGGG	TAACATAGCA	AGACCTTTGT
52301	CTCTACCAAA	AAAAAAAAT	TGGGTGTGGT	GGTGCCACCT	GTATTCCTAG
52351	CTACTGGGAA	CAGTATGCA	GGAGGATCCC	TGGGACTCTA	GAGTCCAGAG
52401	TGAGACCCTG	TCTCTAAAAC	AAACAAACAA	ACAAAAACTG	TATTTATGTA
52451	AAAGTAATAC	TTGTTTTTTA	AATTTTATTT	ATTTTAAATT	GATAAAAATT
52501	GTATGTATGT	TTATGTGATG	TATATATTGT	GGAATGGTTA	AATCAGGCTA
52551	ATTAACCTCAG	ATTTTTTGTG	TGTGTGGGGA	GAATATCTAA	AATCCCTCTC
52601	CTTAGCAGTT	TCCAAATGAA	ATGAAAGAAT	AAAAGTGATT	TATTTTTTTG
52651	AGACAGCATC	TCACCTGTT	TCTCAGGCTG	GAATGCAGTG	GCACGATCTT
52701	GGCTTACTTG	ATCCTCGACT	TCCCTGGCAT	CCGGTGATCC	TCCCCTTCA
52751	CTCTCCTAAT	TAGCTAGGAC	TACAGGCATG	CGCCACCATG	ACTGGCTAAT
52801	TTTTGTATTT	CTTGATAGG	CAAGGTTTTG	CCATGTTGCC	CAGGCTGGTT
52851	TCAAGCTCCT	GGGCTCAAAC	GATCCACCTG	CCTCAGCCTC	CTGAAGTGCT
52901	GGGATTACAA	GTGTGAGCCA	CCACACCTGG	CGAAAAGTGT	TATTTTTTTA
52951	AATGACAAAT	TTAAGTCAAA	GAGATTGAAT	GTTCACCTCT	GGTACTTTGT
53001	ATATAAGAGA	AACATTCAT	TAAATAATTT	TTTAAACATT	TCTAAAATTA
53051	CATATTTTGT	CATTAAATGT	TTAAACAATC	AGTATAATTT	CATTGATACA
53101	GTGTTTGTTA	TTTTGTCTGT	GTTTAAGATT	GATAATTGGG	GTTAGTTTAA
53151	ATTCAGAATG	TTATTCTATT	TAATGTCACA	CTTCATGTCT	TTTTATTTTG
53201	TATATCTATT	AATGAATTAT	TTTAGCTATA	GTTATTACTG	TTTTAGAGAT
53251	GAGGTCTTCT	ATGTTGCCCA	GGGTAGACTT	GAACTCCTGG	GCTTCAGCAA
53301	TCCCCTCCTC	AACCTCCGGA	GCACATGAGA	TTAGAGACGT	GTGCCACTGT
53351	ATCTGGCCTG	CTGTAGTTAT	TTTTAATTCT	TTTGTCTTTA	AACTTTTATA
53401	CTAGAGTTAG	AAATGATTTA	CAAACCCTAT	TGCAGTTTAA	GAGCGTTATG
53451	AATTTGACTA	TATATTTCTT	ATAACAACCT	AACTTCAGTT	GCTTACAAAA
53501	ACTACAGAGT	TTTACTCCCC	CGTCCACATT	TTATACTATT	GATGTCACAC
53551	TTTACATCTT	TTTATTTTGT	GAATCCATTA	ATGATACTTC	TGGTAGTTTT
53601	TACACTCCAC	TATTCAGTTG	TCAGACACCA	TTCAAGTTGT	AGATTGTTAT
53651	GAGCTAAAAA	CAACTTAATG	GGTATTTTTC	AAAAATCATT	TATGTCAATT
53701	GCTAATGGAC	CTGTTTTCTA	TGCCATGATC	ATGCTTTTTT	TATTTTTGAG
53751	ACGGAGTTTC	ACTCTTGTG	CCTGGGCTGG	AGTGCAATGG	CGCGGCCTCA
53801	GCTCACTGCA	ACCTCCGCCT	CCTGGGTTCA	AGCGATTCTC	CTGCCTCAGC
53851	TGGGATTACA	GGCATGTGCC	ACCGTGCCGG	CTAATTTTGT	ATTTTGTAGT
53901	GAGACAGGGT	TTACCATGT	TGGCCAGGCT	GGTCTCGAAC	TCCTGACCTC
53951	AGTTGATCTG	CCCACCTTGG	CCTCCCAAAG	TGCTGGGATT	ACAGACGTGA
54001	GCCACTGCGC	CTGGCCTGAT	CATGCTTTTA	AGGTGGTTGA	GTAAGTACTA
54051	GTTGCTGGGG	CTTTACTTAG	TGCCCTCCTA	CTCAAATGTG	TTAGAACATA
54101	GTTAAGAAGG	CTGTAGTGTT	CAAAGGAGT	AAAAAGCAGT	GCAGTGTTTG
54151	CAGTAATATC	TGCTTCTCAA	TTTAGGACTG	ATGCTTATTA	TGGCTTAAAT
54201	GTTTTTGTAG	TAAATTTTGT	ATTCAAAAAA	TATATTTTTC	TTTCTTTTGT
54251	CGACAGAGTC	TTGCTTTGTC	ACCCAGGCTG	GAGTGTGGTG	GTATGATCAT
54301	GGCTGACTGC	AGCCCTGACC	TTCCGGGCTC	AAGTGATCTT	TCCACCTCAG
54351	CCTCCCAATT	ACTTGGGACC	ACCAGCATGC	TTGGCCGATT	TTTTTTTTTT
54401	TTTTTTTTTT	GTAGAAGCAA	GGTTTCCCTA	TGTTGCCAAG	GCTGGTCTTG
54451	AACTTTAGGG	CTCATGTGAT	ACTCCTGCCT	CGGCCTCCCA	AAGTGTTAGG
54501	ATTACAAGCC	TGAGCCACCA	TGGCCGGCCA	AAATATTTTC	ACTATAACAA
54551	ATATCATATC	TGTATATACT	CAGTTTTTAAT	ACTAACTCAA	AGTAGAAACA
54601	TAAAGCTGAA	TGACTATTTT	ATTTTCAGAT	TCTCTCCATT	GAGTTTCCTT
54651	CTCCGCTTGT	TGTGATCTCT	GAAGTTTCTT	CCATCTTTCG	CAGTTCTTGT
54701	CTAGCATTTT	TTTTTTATCA	GCAGTTTTCAT	TCAGATTTTTC	TTTTTTAGTTC
54751	TTTCAACGGT	GGAGTGGAAG	TAGGCAGCAG	GACAGAAGAA	CTTGAAGCAG
54801	AGCACACTGG	AGAGGAGAAA	TTAACAAAGC	CTTTATGAAT	AAAACAACCC
54851	CCCAATATCA	GTCTGTGTGC	ATTATGAGCA	TAATTGTACT	TTCATCTCAT

FIGURE 3R



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501 CTGTAATGTT CATGACTTTT CTAGAAAATT ATACTTTAAC ATGAGAAAAG  
54951 AAAAAGAACC AGCTAATTCA TAGGGATGGA GGACACAGCA TAGTCAAAGC  
55001 AAGAATGAAA CTCTCTTTAG TGCCACCTCC AGTGCAGAAT AAGTAACATT  
55051 CAGCAGAGGC AGGTTTCATT TGATAATGGA TTCCTATAAT AAACGTGCGCT  
55101 CAGAATTTGT GCAGGTTTGA AAATCCCGTA TTCCAAACCC ACTTCCTTAG  
55151 CCCCCAAGTT AGAAAACAGC TTCAGTAAAG AAAATTGTAC GATGATATAA  
55201 CTTTACCAAA AAATAATTTC TTTCCATGAA GATGATATAT TATTGTTGAC  
55251 TTCTAATTCA ATCAAATATA AACAATTGCT AAATGGCTTT TCAGTTGACT  
55301 CCTTTCTTGG TTAAGGAGAA GATAGGAAAA AATGAAGGGA TCAGAACTCA  
55351 TAGGATACAT TAATTTTTTT TATCTCTGAA TAAACAGGTT GCCTACTTAA  
55401 AAATCTATCA GTTTAAAAGT GTTGGTCTCT TCTCTCTCTT TTCAGAAAGT  
55451 GCCAGGAAAA AACAGAAGG TATCGTTGGC AGTTCTCGGG TGTGTTTTCG  
55501 ACAGCACACC CCATCTCTTC CAGCAGAAAG TCCTCGGCCA TTGAAGCTTC  
55551 GAAGCATTCT TGACATGAGC CCTTTTACAG TGACAGACCA CACCCCAATG  
55601 GAGATCGTGG TGGATATTTT CCGAAAGCTG GGACTGAGGC AGTGCCTTGT  
55651 AACTCACAAT GGGTAAGTCT GGTACCACAG GAATCAGTTC ACTTGCTAGA  
55701 ATATAGGATC CTTTTTAGTG GAATCTATAT AGTTATTAGG GGAGCATGTG  
55751 AGTCAGCTCC CAGGTGGGAA AGTCTGTCCT ATGGTATAGT CACAAATATA  
55801 GGATCAGTCA ATCAAATTTC ACATTTACTA AGGAATAAGA AAGATGTCAT  
55851 CTGCCTGCTC TTTGCCAAAC AGTGACATTT GTAAATAATA CCTCAAAGTT  
55901 GGAAAAGAGG TGCTGAAAGA TCTCCAGCAT GAAAGCATGT TGAGCTTAGA  
55951 GTGCTTCTTT TCCTAGGGAA GAGTGGACCT AACCTGCATG GAGCACTGCA  
56001 AAAACCTGTT TTATTTTTGT AAATGTTTCA TTTTGTAGTAT ATAAATTTCT  
56051 AGTACAATAA TAAGTTTCTA GATATTTTGC TATTTACTCT TTCAGCCAAT  
56101 ATTTGATTTA TCATGTAATG AAGGAAAAGAA TATATACTTA AATGAAATTT  
56151 GTAAATGAGC TAAAAATCTC CTTTAAACAA TGCTTTGTTT CCTTTTGTCT  
56201 ACCTTTCTCT ATACACAAAT CTTTTATATT TATATAACTG CTAAGGACAA  
56251 ATAAATACCT ATGTATTTAA AATGTATACA TTGATAATTT ATTTTCCAC  
56301 CTTTTACACA TGAAGTGCCA GTGTTTCTCC ATTGACAGGA ATATAGGAAA  
56351 GAAACAGATG TCACGGGGGT TGTGGAGACC TTAATGCACA GAATTGATTT  
56401 AGCAAATACA CTACTTCGTC ACCACTGCTC TCTTTTCCTG GACCTGGGAT  
56451 CTGTTTCTCC ACACCTCTTT CTTTAGGACC CTTTATTTC ACTATATATT  
56501 CTTTCTTGTT GAACCTAAGA ATGTTGTTT ATCCGAAGGC AAATACCAAA  
56551 AAACAGAGGG TATTCTTGGA TTATGCATAA ACTGGATGGC TAATCTGAA  
56601 CAGCGTAAAG CTGGTTGAAA TTCTAAACAG AGAATCATAG CAGTTTTTTG  
56651 TTGTTTTTTT TTTTAAACAT GTTGTAGAAA ACACATTGGT GACAGAATAC  
56701 ATGACTCCTG TCCAGAGAAA GGAGAGAAA AGAACAGAAA GGAAGGAAAT  
56751 TTGTTTATTG AACACCTTCA TATTTTCTCA TTTAACTTTG CAGGACCTCT  
56801 GCAAAGTAGG TAGTTATATC CCTACTTTAC AGATGTAGTA ATTAAAGCTC  
56851 AGGAAGCTTT AATAATTTGC CCAAAGTCAT GTGGTGAACA AGTCATGGTT  
56901 CAAGGAATCA GACTGTCTTT CCTACTTTAA AACCAGCCTT CTTGCTACTA  
56951 TTTTGCACCT TAAGTGACTG ATAGAAATCC TCTTTCTTTG TGATTTCTTA  
57001 AACTACTAAA ACATTTTCTT GGCCAATATA TTAGATTGAG TTAAGAATAG  
57051 AAATATGAAA CTAGAGAAAT AGATCTATGT TTAGTGTTT TCACTGCGCT  
57101 AATTAATAAATA ACTCTTTAGG AATATGAAGT AAATCATTA AGAGATAAAG  
57151 CCCTTAAAGG CAGGGAGTTT AGAATTATTA AATTCTAATA ATTTAGATAC  
57201 TGATTGGAGA AGAGATGTAT TCATAAGTTA TTATTGTTAC TATTGTCTT  
57251 TGTGTAATAT TGTTTGATTA AATGATGGCA CCGACTTCAT TAAGTTTAAA  
57301 AACTCAGTAC TAGTTAAATG GGGCAACTTT TCATAAAGCT TTGCTAGTCC  
57351 TTGAGCCCTT TTATTTGTTA AATGGCTCAA CTGGAACCTA AGCTGAGTTG  
57401 TTACAAACTA TTATTTGCTT CAAGTTGTTT TCTGTTCTCT GCATGGCTTT  
57451 TTCTTTTGTG TACTGACAAA TATAAATGTT ATTCTGTTGA GTTATGGTTA  
57501 ACTATGAACA CAGAACTGTT AGGGATTAAT TTTCATATTT CAGTTTGTG  
57551 ATTAATTTCC AGGTATTTGG CAGCATAGAT ATTAGAAAGG AAAATATTTA  
57601 AAAGAAAGTG TAAAAATAAC GAAGTGTATA GAGCGAGGGG TGGATAGCTA  
57651 ATTAATAATT TGTCTGGTCC TGCCTGTTCA TATGAAAAAA GGGGTTGGAC  
57701 TTTCTTCTAA GGGAAATATAT TAAATTGCTT TCATCATATT TTCCTTATTT  
57751 CTGCTGTGCA AGGAAAATAA ATTGATACAT ATATGGGGAG AAAAGAGATC  
57801 ATTTAGGGAA GTGGCTCATG GGACTTTTGT TTTTGTGTTA AGTGTATTAG  
57851 GAAGTCGGGT GTTTTTTTTC TCACTTAAAT TATTTAAAAC CCAGAAAAGA  
57901 AATGATATCT TCTGGTTTTT AAAGGAGACC ATGAAGTTCT GCATAGCTAT

FIGURE 3S



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58051 CATTGATGTG TAGTTCATAC TGCATTTTGA GAAGTGGAAA ATAGTTATTT  
58001 GGAGGAAGAT AACAAATCTG GAACCTTAGG TGCAAGGAGA AAAAGAATAG  
58051 ATGAAAGGGA AAGATGTTTG TAAATTATAA AAATTTCAAT TAGCTATTGG  
58101 TTTTCTGCAC TTTATATTTT AACTGCAGAA TTTTTCAAAA TCAGTTAATC  
58151 TTGGTGGAAT TAGCAGGATG TTAATAGGAG TGAATCAGAA AAAAACATTT  
58201 TGTGACTGTC TAAGTTTGGG AAGTATTGGA TTAAATACAA TTGAGGTTTC  
58251 TTTACTATGG AACTCCTCAG AACTTATAAT ATGTTGATAT TCTTTGATTC  
58301 CCAGATGAGG GGATGGGTAA TAGGATACAT GGTTTTCCAG ACTTGTTTGA  
58351 AAATGCAACT ATTTTTGGGT TGCAGGGAAG GATATAGTAG AACTCATGGG  
58401 AACTGGTGTT TCTTGGAAAC TGCTTTGGAA ATGCTGGGTT ATGCCCTGTT  
58451 AACTCTTACA TCATTAGTTT TTAGCCCAAA AGGAAACAGC AAATAATGTT  
58501 TTATATGAGC CACATTTTGC GTTGATTTTC CTTCCTACTC GTAAAAATTAC  
58551 TAAAGCAGCA CTCTGACTTT ATTATGCTCA AATCGCTCTT CTCCATTAAT  
58601 GTGTGTTTCT CCATCTTTTA GGGTTTTTAC TTTATAAATA CAGAGATTAC  
58651 TGTGTAATAAT TCTAAATTTG CCACTGGGTC GTTATACATT TGTAACCTTC  
58701 CTCACAGTAT ATTTTGTGAT TTGGCAGAGT TTACCAATAT AGATGATACT  
58751 AACTGAAATT AATCATTTCTG TATAATTGGA TAGAAAAGCA TGAGTAAGAA  
58801 TTCAATTGGT ATTATATTTA ATTAATTGCC AAGATTTTCA CATTTCCTGA  
58851 CTACAACAAT AAAATCAAAT GAATTGATGG CTTAAAAAAA AGAAATCTCA  
58901 AATGTTTTAGT CAATGAAGAA CATCTATTGA ATGAGTGAAT GTTCATTATA  
58951 TATAGTGCAT TTTCTGAGCT TTTTGGAGG GGAAGTTGC TCCCATGCTC  
59001 TGAGAACTTT TAAGGATCGA TACATTATTT TTAACATAAT AATGAGAAAA  
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59101 CCCCACCTCC CACCCAGCC ATCAAGCTAA GTAACATTT TACACCTGGA  
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59201 GTCTGAATGT TCAAAGGCAG TTTAACAGGG AGGTTGACTT AATGAGATCA  
59251 TCAAGGAAAT GTCCAGTCAT CCTGAAGGGT ATTTTGGATG GGCTTCCAGA  
59301 ATTTAAAGAT TAAAGTTTTT TTAAGGTTTT TTTATTTTCA CTGTTTATAT  
59351 TGCCACATTA ATTTCCATTA TAAAACCACT AACCATAGTT TTGTTTAAAT  
59401 TAGCAATCTA ATTATTTTCA TGTATCCTCA TTATGAGAAT TTATGTCCAT  
59451 CACTTTGCTT GATGTGATA CAGTGACATG CTAAATGAGA AACAATTGTT  
59501 ATTTAGAAAA AAATGCACAA AGTGAAAGTC CTTTTAATCC CTAATCATAA  
59551 ATACATTTTA TTAGCTTACT TTAAGAAGTG GCAGTCACAG CTCCTGAACA  
59601 TTAGGGAGTG TTTCTTTTGG TCAGCATTAT TTATTTAGTG CACATTGCCT  
59651 TTAATTTTAA TTTGAAATTA TAGTAAAAAT CACGGGAGTT TTTAAGTCTC  
59701 CTCACAGCCT TTTGCTACCT TTTCACCAAG GTAGATCCAG ATGATAACTG  
59751 CTGTGTTGTG ACATCATAGA AATTAGAAAA ATATTTTCCT CTGAGGAAAG  
59801 AACATTTGTA ATGAACTCT ACATATCAGA GGTCTATAGC TATGTATCAA  
59851 TATTAAGTTT CTTTGTACT TTGCTTTGTA GTCATCTTCA TTCCAACTT  
59901 TCATAATTAT TATTTTACT TTAAAAAGAA AAATAACCCA CCAATATTGA  
59951 AGATTAGTAT TGTGTCACTT TTGAAAGTCA GTAGAATTTA TGCAAAAGGA  
60001 ACCTGGAAC TTAATCAATT TTGTTTTTAT TTTCTAAAGT TCATGAGACT  
60051 CATTCTTATG GTTCATGTTT TTATTTTTC TCTCATTTCT TATCATTATG  
60101 ATTGGAACT CTTTAAATT AATTTCTCAC ACAGTTATTA GCATAATAAT  
60151 CTGTTTCAGG ATTGTCTTGG GGATCATCAC AAAGAAGAAC ATATTAGAGC  
60201 ATCTCGAGCA ACTAAAGCAG CACGTCGAAC CCTTGGTGAT TAGATATATC  
60251 AGATCTCCTC ATTAGACACC TTAGAAGTCA GGAAGCATGA AACTTGTGAA  
60301 CTGTTGAGTT CTGTCTTCC CAGATATCTG CTGAACAAAA ATATCCTACT  
60351 ATGCTGCCAA TTACATTTGT ATCTGATAAA ATGTGTCTGT AAGATAAATT  
60401 TAGATATGTG TAAAATCCCA TTTATAGAAA GTAAGCAAAA GTTAACATCT  
60451 CTCATCAAAT CATTATTAC AATTTAGAAA CTGTAAACAG TTTGGTAGTG  
60501 GAATAAGTGA ATATTATTGG ACATTCTTAA AGTGAATATG GCAAACTCTG  
60551 CTACCTCAGT GGATACACCG GTCTCAGAAG ACACCTGACT GGTTAAAAAT  
60601 GTCTGACCCA TCCCCGCAAG CCCTTTTTTT TTTTTTTAAA TGTTTCCCGA  
60651 TCTTGTGGTA GTCTTATGGT AAATCTAAGC TCCTAAAGGA TTTTAAAGGA  
60701 GCTTAGCAAT TAGAACTGCT TACAGTTAAA TGGATTTTTT AATGGGCACA  
60751 CTAATAGAG TGTAATGTGT ATATTATTG TGATCATAGC ATTAGTTCTT  
60801 TTTCTGCTAT ACCCTGCATA TCTTCAAAGT CACAGTGTGT GTCCTGCCAT  
60851 CTCATTAGTG AATTGTACCT AGATTATGTG TGTGCCCTT TTGTATGATG  
60901 TTTCTGGAAC GCTATAAGCA GCTTTTAGAG TCAAATGCAT TCATTTTAAC  
60951 TGGCTTTATG TCCTAGTGGT TTCATGACTA CAAATTTGAA TTATCTTACT

FIGURE 3T



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61001	GCATAACATA	AAAAATGTCT	GGCTTTAGCA	ATTAATGCCC	GAAATTATTT
61051	TGCCCTGCAA	TTGTCAATACC	TGTATGAAAC	CTGTCCCAGT	TTGCTTAAGT
61101	GCACAACTGA	TTATGTATTCT	CTGTGTGTAT	GCTAATATTT	CACAAGTGTT
61151	TCATGCATCC	TTTTTTAAAA	AACTACTAAC	CAGAATATTA	TCGTAGCTAC
61201	TCATTCATTCT	TGCTTTCTGCT	TTCACCTATA	ATAATCTTTT	AGGACTGCCT
61251	TCTGATTTTCT	CACCTATCTT	TTAATGTAAG	CATTAACAAC	TAAGACTTTC
61301	ATAAAAGCAC	TGTATCTTAA	CTTTCCTGGC	CTAAATCAAA	AAAAGGAAAA
61351	CATTGATAAG	TGTCCTAGAA	ACTTGGATTCT	TTTTATAGAT	TTGTTCTTGG
61401	GGCTCTGATG	TTTGGGATTG	ACGTTCTGTG	CTGACCATTCT	TATATGCATT
61451	TTATCTTAAT	AGTATGTGCT	TTCATGAAGA	TTCTGATACA	AGTGGGCAAT
61501	CCTTAAATTA	TCTTTGAAAA	ATTGGTTAAT	TTTGGTTAAA	AAAGGGAAAG
61551	TGGCTGGGTG	CAGTGGCTCA	CGCCTGTAAT	CCCCAGCACT	TTGGGAGGCC
61601	GGGACGGGTG	GATCACAAGG	TCAGGAGTTG	AAGCCCATTCT	TGGCCAACAT
61651	GGTGAAACCC	TGTCTCTACT	GAAAATAATT	GGGGCATGGT	GGCACATGCC
61701	TGTAATCCCA	GCTACTTGGG	AAGCTGAGGC	AGGAGAATTG	CTTGAACCGG
61751	GGACCCAGGA	GGCGGAGGTT	GCAGTGAGCT	GAGATCGCGC	CACTGCACTC
61801	CAGCCTGGGC	TACAGAGCGA	GACTCTGTCT	CAAAAAATAA	ATAAATAAAT
61851	AAATGAAAAA	GAGAAAAATAT	TGAGAGGATT	TGGTCATCAT	TTTACTGCCTC
61901	TCTTCATGTG	ATGGAAATCA	ATTTTCCCTTC	TCAAATGGGA	TCAGTATCAT
61951	TTCTAGTCA	TACATCCATC	CAGTTTTTGT	TACTTTTTTG	TTGGCATAACA
62001	TTAATCAAAA	TAGCTCTGCT	TCATTGAGGC	ATGCAGTCCT	CAGACTCTCG
62051	GTGGAAAGGC	TGTCATACTA	TTAGTGACCA	TAGTAACCTT	TTATACCAAA
62101	GGATGGTTGC	TGGATAATTT	TAATATCTTT	ACCAATAAAG	TACTTTTTTGG
62151	AAATACAAAA	TCAGGCTGCT	TGCTTTGTCT	TATTCTGTCT	AACAAAAAGG
62201	ATTTAGCTAT	AGATTTAGCT	TCTCCTTTTA	TTTTCCCTTT	TATTTTCATAG
62251	GAGTCTTCTG	TTTATTCCTT	TCAGGCGCCT	CCTTGGCATT	ATAACAAAAA
62301	AAGATATCCT	CCGGCATATG	GCCCAGACGG	CAAACCAAGA	CCCCGCTTCA
62351	ATAATGTTCA	ACTGAATCTC	ACAGATGAGG	AGAGAGAAGA	AACGGAAGAG
62401	GAAGTTTATT	TGTTGAATAG	CACAACCTCT	TAACCTGAGG	GAGTCATCTA
62451	CTTTTTTTTCT	CTCCTTTTACA	AAAAAAGAAA	GGAAATATAA	AAGCCGGGTT
62501	TTTGCAACAT	TAATGCTGGT	GGAATGGAGG	AGTTGTTTGG	AGTTGTTTGG
62551	GGAGGGAAAG	GAGAGAGAAG	GAAAGGAGTG	AGGTATTTC	CGTCTAACAG
62601	AAAGCAGCGT	ATCAACTCCT	ATTGTTCTGC	ACTGGATGCA	TTCAGCTGAG
62651	GATGTGCCCTG	ATAGTGCAGG	CTTGCGCCTC	AACAGAGATG	ACAGCAGAGT
62701	CCTCGAGCAC	CTGGCCTGTT	GCTCCAACAT	TGCAAAGACA	CATTATCAGT
62751	CCCTATTTCT	AGAGGGATTA	CTTTGAATTG	AGCCATCTAT	AAAACCTGCAA
62801	GGTCTTGCCC	TTTTTTTTTAA	TCAAACTGT	TCTGTTTAAAT	TCATGAATTG
62851	TATAGTTAAG	CATTACCTTT	CTACATTCCA	GAAGAGCCTT	TATTTCTCTC
62901	TCTCTCTCTC	TCTCTCTCTC	TCTCTCTACT	GAGCTGTAAC	AAAGCCTCTT
62951	TAAATCGGTG	TATCCTTTTG	AAGCAGTCCT	TTCTCATATT	GAGATGTACT
63001	GTGATTTTAC	TGAGGTTTCA	TCACAAGAAG	GGAGTGTTTC	TTGTGCCATT
63051	AACCATGTAG	TTTGTACCAT	CACTAAATGC	TTGGAACAGT	ACACATGCAC
63101	CACAACAAAG	GCTCATCAAA	CAGGTAAAGT	CTCGAAGGAA	GCGAGAACGA
63151	AATCTCTCAT	TGTGTGCCGT	GTGGCTCAAA	ACCGAAACAA	ATGAAGCTTG
63201	GTTTTAAAGG	ATAAAGTTTT	CTTTTTTGTT	TTCTCTCAG	ACTTTATGGA
63251	TAATGTGACC	GGGTCTTATG	CAAATTTTCT	ATTTCTAAAA	CTACTACTAT
63301	GATATACAAG	TGCTGTTGAG	CATAATTAAA	TAAAATGCTG	CTGCTTTGAC
63351	AGTAAAGAGA	AGGAAGTATT	CTGATTAGCT	GTATCTGGTA	TTAATTGCAT
63401	GTTAAACAC	TGGAATTTT	AAAATTGAAA	TTAGATCAGT	CATTCTTTTC
63451	TTTTCTCAAG	ATATCTCATG	GCTGACACTG	AAGAAGAAAT	GTAATTCATA
63501	ACTTGCACTA	AATGTATATT	TTTTTTCTTA	AAAATTTACC	ATTCTTATTT
63551	ATATTTTAT	GGATTAAAT	TTATAAAATA	CAGATCAGTT	AATATTGCAC
63601	TTAAGTAATT	TTACCTTTTT	AATGTGATTT	TTATAGAATA	ATTCAGACTT
63651	ACAAATACAG	AGATATGAAC	AAAGTTTACA	GTGGGAACAA	AGGTTTAAAA
63701	AAAGGTTGTG	GTTCTCTCTC	TGTGATCCAG	TGTGCACATA	AACCTTTCTC
63751	TGATCTTTCA	CTGCCATCCT	CTGGATTATG	TCTTCTGACC	TGTCCATTTT
63801	GACCCATTAA	CTGGAAAGTT	GAAAACTAC	ATTAACCTGGA	AAGTTGAAAA
63851	ACTACATTAC	TTGGGAGAAT	AAAACCGAAA	GTTTCGTGTAT	ACCTTCTTAA
63901	AAAAAAAATC	AAACCAAAAA	TGTGAAAACA	ATAGAATTGC	AAAGATAGCA
63951	GTTAAATTT	TAATCTGAAA	ATAACCTTTG	AATCTCGGGC	TAGGTTATGT
64001	CCATATTTGA	AGTGGTCAGT	GATGGTTTGA	ACATTTTTTG	CAGGATGAGT

FIGURE 3U



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64051 TAAATGCAC TGGATTATAT TTGGGATTTT TGTTTTTGA ATTGTCTGTT
64101 TTAATCACAG CCTTAATTCA CAATTGGCAA AGGCAGTTA CTCAAAGGAC
64151 TGGGCTAAAT ATTCTGTAAT TATGCATTTT TGATAGGAAA ATGAAATTTT
64201 TGCAAACAGA CATTTTCTTT TTTTTTGGCT GGAGTGCAGT GGGGCATGGT
64251 CTTGGCTCAC TGCAGCGTTG ACCACCTGGG CTCAAGTGAT ACTCCCGCCT
64301 CAGCCACCCA AGTAGCTGGC ACTACGGGCA CACGCCACCA TGCCCAGCTA
64351 ATTTTTTTTGT ATTTTTAGTA GAGATGGGGT TTTGCCATGC TGCCCAGGCT
64401 GGTCTCAACT CCTCAGCTCA AGCAATCTGC CTGCGTGAGC CTCCCAGGCT
64451 GGTGGAATTA CAGGCGTGGG CCACTGCGCC TGGCCCAGAC AGACATTTTC
64501 TGAAACACAA CTGGCAATGA GCTGTTTTTA CATTTTGAAA GTGATTCCTC
64551 ACTTCCTAGT TCTTAATTAT AGTATACCTA TTAAGATCTG TAAGATCCTG
64601 AAGACATAAG ATCATGAAGC CATATAAGAA TGAGGATGA AAGTTGAGCA
64651 AAATTTTCGG GATTTTGGGA AACATTCTTA GCTGTGCTAT CTGCCTAAAA
64701 TTATTCCTTA TTAATTCTCT CCTTTGACAG ACTTCAAGTT TTCTTCATAG
64751 CCCTTTCAAA GTTTTTTGAG CCATCCAGAG TAAAATCATT TCTAAATGAT
64801 AGTTCTGTAT ATCTCCAACG CGTCTTAAGT GTATTTGCCT GTGTGCAACG
64851 TATTGCTAGA CTATGAACTC CTCAGCATGG CTGCTGGATA ACTTAATTGT
64901 CCTGAGTTAA TAGCCTTCAA AGGACAAATC GGTTCCTTTG CAGATAGCTT
64951 CGTAAACACT CACATGGAGT TTATTTTATC ATATTTCCCT TTTTATTTTC
65001 TGCTCCTCCT TTAATTGCCC ATCTTGCTTC AGAGACTGAC ATTTTCAGGGT
65051 GGATATTAAT TAAAGCATTG ATTTTGTTTT TTGGTATATT TCTATCCCTA
65101 GTATTTCTAT CTTACTGCTA AAATACAGGA AAAGTGCCGT ATTTTAAATG
65151 CATTTAGTGG TTTTCTTTGG TGTTATCTGT TCCATTTTTC TTTTTCATAC
65201 ATTGAAGTGT GTCTCCTTTT CAACCAAAAT AATGAAATAG TGGAGACCAT
65251 GAAATTGTTG TGCCTGGCTA ATTGGCAAAT TAATTTACCA ATATAATAAG
65301 TGTAGCGCCT TGTTTGAATA CCCTTTTGA GAAGGTATGA TGAGAATGGG
65351 CAAGGGTGT (SEQ ID NO:3)
```

**FEATURES:**

Start: 2159  
Exon: 2159-2237  
Intron: 2238-22041  
Exon: 22042-22199  
Intron: 22200-30359  
Exon: 30360-30459  
Intron: 30460-31475  
Exon: 31476-31663  
Intron: 31664-32964  
Exon: 32965-33087  
Intron: 33088-34548  
Exon: 34549-34755  
Intron: 34756-37975  
Exon: 37976-38056  
Intron: 38057-39552  
Exon: 39553-40098  
Intron: 40099-46366  
Exon: 46367-46553  
Intron: 46554-49237  
Exon: 49238-49636  
Intron: 49637-55445  
Exon: 55446-55662  
Intron: 55663-62274  
Exon: 62275-62362  
Stop: 62363

**CHROMOSOME MAP POSITION:**  
Chromosome 4

FIGURE 3V



Attorney Docket No. CL001163  
Application Serial No. 09/804,472  
Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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SYNTHETIC VARIANTS (SNPs):

DNA

Position	Major	Minor	Domain
1275	T	C	Beyond ORF (5')
1456	T	C	Beyond ORF (5')
5893	G	A	Intron
6226	A	G	Intron
8866	T	G	Intron
10397	C	T	Intron
10621	T	-	Intron
19651	A	G T	Intron
19891	T	-	Intron
20272	C	A	Intron
20412	T	A	Intron
23340	A	G	Intron
29948	T	A	Intron
33579	A	C	Intron
40762	G	A	Intron
40936	T	C	Intron
45998	A	G	Intron
47771	T	C	Intron
48117	C	T	Intron
54563	T	G	Intron
58735	C	T	Intron
59643	C	A	Intron
61638	G	T	Intron
63291	G	C	Beyond ORF (3')
63463	A	G	Beyond ORF (3')
63636	G	A	Beyond ORF (3')
63998	T	C	Beyond ORF (3')

Context:

DNA

Position

1275 GCATTTTCAGGAGGAGAATCTCCAGTCTAGAGGAATCCTCTCAGAGGTAGCTATAAAATA  
TTGAACTCTGATCTTCAATAAGCATTTGTGCGGTTTTGTTTTGTTTTTAATGACAGTTT  
TAAACAAGAAAGTTGCTTTATTTCTGAACCTTCATAAAAATTTCTATTAAAGAGACAAATT  
CTGAATTTTATAACAATTTCTAGAACAGTTGAGTACCTCACTTTGAGACACATTTTGTCT  
AAAAGTTAAAAACACAAAACCTTATGAGATAAAATAGGAAGCTAGTAGAGATAGGAAAG  
[T,C]  
CCTCTGCTTAGTAAACCTCTTTTTTTCGCTAGTTTGTAGACACATACAATAGTAAAGTTACTT  
AGTACGTTGATAGTTTCTTTCTCCTCAAAAGCTACAATGTCTTACTAGCTAGTTCCTTC  
AAGAAAGGAAACAAGAAGCCGCTGGAGGAGATTGGTGAGTGGGATAAAACACTATTCAAC  
TCTTCAGTTATTTCGGTTTTTAAATCCTCAATGAAAGGCTGCTGTATTATAGAGTATTTT  
TTTTTATTTTAAATAGACTTAGAACCAAGTTTCTTGAGAAACCTTTGGCATATTGTAGTT  
(SEQ ID NO:46)

1456 TGAATTTTATAACAATTTCTAGAACAGTTGAGTACCTCACTTTGAGACACATTTTGTCTA  
AAAGTTAAAAACACAAAACCTTATGAGATAAAATAGGAAGCTAGTAGAGATAGGAAAGT  
CCTCTGCTTAGTAAACCTCTTTTTTTCGCTAGTTTGTAGACACATACAATAGTAAAGTTACTT  
AGTACGTTGATAGTTTCTTTCTCCTCAAAAGCTACAATGTCTTACTAGCTAGTTCCTTC  
AAGAAAGGAAACAAGAAGCCGCTGGAGGAGATTGGTGAGTGGGATAAAACACTATTCAAC  
[T,C]  
CTTCAGTTATTTCGGTTTTTAAATCCTCAATGAAAGGCTGCTGTATTATAGAGTATTTTTT  
TTTTATTTTAAATAGACTTAGAACCAAGTTTCTTGAGAAACCTTTGGCATATTGTAGTTT  
TTTTATGGCTATGACTCACATGACATTACTGTATAAACTAGTACATTCTCTCGTAAAC  
CACACAACTTACTAGAGTGCTGCTCTCATTTTCTACATTAGAAATGAAAAAGGGCATT  
GTCTGCATTCAAAATTCCTTTTTTACATCTCTGTATTACTTTTTCCCTTTATATTTATC  
(SEQ ID NO:47)

FIGURE 3W



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TCTAGTTGACAAGACTGAGGTAAGGAATTGTTAAGGAAAAGTCAGAATTCATCCAGATA  
TTTGGCTCATACTTTAATCATGAGGCTAAACTGCTTCTCTACACGTATCTTCATAGTA  
ACTTGTGTTTTAAGTCTGGTAGAAGCATAAGAAGTTTAAACACAGACAGAATCCTGTGGA  
AGTTAGTAAATTTCTAGTGAACGATAGAAATGATAGAAATCTCTTCTCCCCCAAAGTCC  
CAAGAACAGATTAGTCTGCTTTTGACAAGTGTTATCAAAGTAGACTGTTCTCACATACAC  
[G, A]  
GGGGACTCAATAGGGCATTCTGGTGGATATAATAAAATGAGTAAATGCGATAACAGGAG  
GAAATGCCTAGTGTGTTGCTCTTGGATTAGTTTTGATACAACAAAGGCAGCTTTGTTGTG  
AGTCAGTAGAGAGGGTAGTGTAGAAAGGTGGAAGTTGGAAGAGTGGCAGATCCTAGAGGA  
CTAATGATGGGCTTAAACCACAAAAAGTGTCGCTTTGCCATTGAA  
(SEQ ID NO:48)

6226 ATAAAAATGAGTAAATGCGATAACAGGAGGAAATGCCTAGTGTGTTGCTCTTGGATTAGTT  
TTGATACAACAAAGGCAGCTTTGTTGTGAGTCAGTAGAGAGGGTAGTGTAGAAAGGTGGA  
AGTTGGAAGAGTGGCAGATCCTAGAGGACTAATGATGGGCTTAAACCACAAAAAGTGTCG  
CTTTGCCATTGAAATAAAAGTTTTGGGGTCTTATTTTTTCAATTTTCTCCCTGAAATTATT  
TCTTGACATTCAATAGCTCAGCAGTGATCTAAATAAAGCTTTTTTGGGTTTCTATTATA  
[A, G]  
TAGAGGTTTGTTCCCTTTTCTTCCCTTTGAAAAGTATCATTTTTTGCACATTATTTGAAA  
ATCCAGGTGTTATATGATATTCTTATTGCCAGAGGGACATTCTGCAGGCTCTTTGTA  
TGATTTTAGGATTGAGATACTTATTATATTTTATTGGCCCTAATATTTTATCCA  
AAATTTAAACCTCTTCTTAAATAATCCATCTAAGTGTCTGTAAATTAAGGAACAA  
TAAAGATTCTTTATTGGTGTGAGAACTCCTTGTCTTACAACAGTAGTATAAAACAA  
(SEQ ID NO:49)

8866 ACATGTAAACCAACAATGAAATTATTTTAGTGACTTGAGAATCAAAGTGCTAGAGTTTGA  
ATCCCTGTTCTACTACTTGCTAGCGGTGTGACCTGGGCCTGTTTAACTCTTGACACCTT  
GTTTTCCAAATTTATAAAGTGGAGATAATAATATCTGTACATTGTGTGTTGTGAGGAT  
TATATGAACATAATATGTAATGTCTGAGAACAATGTCTGGTACACATTAAGTTAATTA  
AAATTAGCTGTTCTTACTGTTATTATTAGACATGAGCTAGATAACAGTGGCCTCTACATG  
[T, G]  
GAAAGATTATTTTAAATCTGATGTAGTTCAGTTTATCTATTTTTTTTATTTTTGTCCCTT  
TTGCATTGATGTATATCTAAAAACCTGCCTAACTCAGGATCACAAAAATTTACTCCTG  
TATTTTATAATTTTAGCTCTTTAGATCTAGGATCCATTTTAGCTAATTTTATATATGG  
TGTGAGGTAGGGGTACGGTTTCATTCTTTTGCACGTGAATAGCCAGTTGTCCCAGCATCA  
TTTATTCAAAAGACTATTCTTTCCCTCACTAGAAAAATATTTCTTTAAAGAATAATGAAT  
(SEQ ID NO:50)

10397 CCAGGCTCCCTTGAACTCCTGGGCTCAGATGATATAGCCTCCTGCCACAGCGTCCTGATT  
AGCTGGGACTACAGGTGTGCACCACTACACGTGGCTTTCCTGATGAAATTTTAAATACCC  
AAATATTTGAGCAGAAATAATAGCTTGTGTTTATTGTTTTTCTACTATCTGTCAAGTATA  
GTATTAAATGTTTTACATAATTTGTCTCCAGTCCACATACAATACTCTAGTAGAAGTGGG  
TAACAAAACCAAGGTACTCAAAGAGGTTAATAAGTAACTTGCCTGGATCACAGAACTAA  
[C, T]  
GGGAGGCAGGGCTGGAATTTGACTCTAGGTCTTTCTGACCTCAAAGTGCAGTAAAGTCAT  
GGAATTTCTCTACTAGGCCACCTGGAAGAAAAGTGATCTTTTTTCCAGTCTTTTTTGTTA  
CTGTTTTTTCAGCCAGGAGATAGTAGAGTTAGGTAGTAGAATAGTAGTCACTGGCATCCGG  
TAGTCAGCCCTCCAAAAAGTTTTTGATTTTTTTTTTTTTTTTGTCTTAACTTGAAG  
CTACTAACTTTTCAGGTCATACTTTCTTATCATCCAAGAGCTGGATATTAGGTAGCAGAA  
(SEQ ID NO:51)

10621 CTCTAGTAGAAGTGGGTAACAAAACCAAGGTACTCAAAGAGGTTAATAAGTAACTTGCGC  
TGGATCACAGAACTAACGGGAGGCAGGGCTGGAATTTGACTCTAGGTCTTTCTGACCTCA  
AAGTGCAGTAAAGTCATGGAATTTCTCTACTAGGCCACCTGGAAGAAAAGTGATCTTTTT  
TCCAGTCTTTTTTGTACTGTTTTTTCAGCCAGGAGATAGTAGAGTTAGGTAGTAGAATAG  
TAGTCACTGGCATCCGGTAGTCAGCCCTCCAAAAAGTTTTTGATTTTTTTTTTTTTTTTT  
[T, -]  
GTCTTAACTTGAAGCTACTAATTTTCAAGTCTACTTTCTTATCATCCAAGAGCTGGA  
TATTTAGGTAGCAGAACTATGGAATTATCCTAAGTCTCTTGAAGCTTCAGCTGTTAAA  
ATTAATTGGTTCTGATTAACTGTGCTCAAGATTTACATTTCTAGGAGCCACAGTTTGA  
TTGGTCTAACTTGGATCTATGTGTTTTCTTTAGCTGGGGAGGAGAAGGTATCTTGATTGA

FIGURE 3X





Attorney Docket No. CL001163  
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Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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19651

TACCTTCACCAGGACTGCATGCAGTGAGGGACAGAAGTTTCCTTAAATAATTGGGTCT  
(SEQ ID NO:52)

TTTATTTTCTGCTACTATGGCAGAATTGAGTTGTTGCAACTGTGTGGCATCCAAAGCCTA  
AAATATTTACTCTCCTGGCTCTTTGCCAACCCGTTTAGATTATGAGCACTTTGGCATT  
TTATGTTTTTGTCTTTCTATAGCACACAGTAAGATGTTCTGCCACATTGTGCATAA  
TTTATGGGTTTATTCAAGGATTTATGCAAGTGTAGCTGCAAGAAAAAACCTAGAAGTGA  
ACTTGCTAGGTTGAAGAGCA

[A, G, T]

CTGTGTATGTTAAATTTGTAGCTTTGCGCTTCCCAAAGGGATTATTCATTTCATACT  
TAACTACTAATTTGTGATAGGACTTCTTTCTCCATAGCTTTGCTAAATTAATGCATT  
ACACACTTCATCTTTACTAATCTGATAGAGGAAATGATATTGTGATTGATTGCAATT  
TCTTTTATGTGTAGCTTGAGCTTATTTTCATATTTAAAGCCAATTGTATTCTTTTT  
CTTGAGCTATCTTTAATGT  
(SEQ ID NO:53)

19891

TTTATGCAAGTGTAGCTGCAAGAAAAAACCTAGAAGTGAAGTGTAGGTTGAAGAGCA  
TCTGTGTATGTTAAATTTGTAGCTTTGCGCTTCCCAAAGGGATTATTCATTTCATAC  
TTAACTACTAATTTGTGATAGGACTTCTTTCTCCATAGCTTTGCTAAATTAATGCATT  
CACACACTTCATCTTTACTAATCTGATAGAGGAAATGATATTGTGGATTGATTGCAAT  
TTCTTTTATGTGTAGCTTGAGCTTATTTTCATATTTAAAGCCAATTGTATTCTTTTT  
[T, -]

CTTGAGCTATCTTTAATGTCTCTCTGATACATTCTGAAGTCTGTGATACTCATATAA  
GATATATGGTGAACATGTGTCAAAGATTTATTTGACTCTAATGAGGGAACCCGCTGATG  
ACAGGCTGATTGAGAAGAGGATGTGTGAGATGAAGTGTATATCATCAGTGAAAGAAAGC  
AAATTCTTACAGGGCAAAAACAAAACCACTCTAAGGGTTATTGTTTCTACTGGACAG  
AATTCATTGCAATTTACCAGATAAAAATTACTATTTCAATTTATCTTTACAAATCAT  
(SEQ ID NO:54)

20272

CAAAGATTTATTTGACTCTAATGAGGGAACCCGCTGATGACAAGGCTGATTGAGAAGAG  
GATGTGTGAGATGAAGTGTATATCATCAGTGAAAGAAAGCAAATCTTACAGGGCAAAAA  
CAAAACCACAACCTAAGGGTTATTGTTTCTACTGGACAGAATTCATTGCAATTTACCA  
GATAAAATTAATCTATTTCAATTTATCTTTTACAAATCATTTTCTAATTTACAGAGTCT  
ATTCCCTAATCAGTAGTAAATAGTCTTCAAATTTCTCCGAGCGTCAGGTGACTATTATG  
[C, A]

AGGCTAATTGTTGACACTCGGGCTTGACTTTAAGAGAACATGCCATAATCTTTTGGCCTT  
ACTTCCAAGTTTTGGATAATTTTCTTAACACATTTTCTCTAATTGCAATGATTTCAG  
TGATATTATTTCTTTTTTTTAAATTTTTTACTATTATTGATCACTCTTGGGTGTTTCT  
CGGAGAGGGGGATTGTCAGGGTCATAGGACAATAGTGGAGGGAAGGTCAGCAGATAAAC  
ATGTGAACAAAGTCTCTGTTTTCTTAGGCAGAGGACCCTGCGGCCTTCCACAGTGTTT  
(SEQ ID NO:55)

20412

TTATTGTTTCTACTGGACAGAATTCATTGCAATTTTACCAGATAAAAAATTACTATTTTCA  
ATTTATCTTTTACAAATCATTTTCTAATTTTACAGAGTCTATTCCCTAATCAGTAGTAAA  
TAGTCTTCAAATTTCTCCGAGCGTCAGGTGACTATTATGCAGGCTAATTGTTGACACTC  
GGGCTTGACTTTAAGAGAACATGCCATAATCTTTTGGCCTTACTTCCAAGTTTTGGATAA  
TTTTTCTTAACACATTTTCTCTAATTGCAATGATTTCAGTGATATTATTTCTTTTTTT  
[T, A]

AAATTTTTTACTATTTATTGATCACTCTTGGGTGTTTCTCGGAGAGGGGGATTGTCAG  
GGTCATAGGACAATAGTGGAGGGAAGGTCAGCAGATAAACATGTGAACAAAGTCTCTGG  
TTTTCTAGGCAGAGGACCCTGCGGCCTTCCACAGTGTGTTGTGTCCTGGGTACTTGAGA  
TTAGGGAGTGGTGATGACTCTTAATGAGCATGCTGCCTTCAAGCATCTGTTTAACAAAGC  
ACATCTTGACCCGCCCTTAATCCCTTTAACCCTGAGTTGACATAGCACATGTTTCAGAGA  
(SEQ ID NO:56)

23340

TTTTTTTTTTGGAGGTGCGGGGACTGTGCGCCATTCTGTTGCCCAAACCTGGAGTGCAGTG  
GTGCAATCTTGGCTCACTGCAACCTCTGCCTCCAGGTTCAAGCGATTCTTGTACTCAGC  
CTCCTGAGTAGCTGAATTATAGGTGTGTGCCATCATGCCAAGCTAATTTTTGTATTTTT  
AGTAGAGATGAAGTTTTCGCGATGTTGGCGAGGCTAGTCTCAGACTCCTGGCCTCAAGTGA  
TTGGCTGACCTCAGCCTCCCAAAGTAGAAAATCTTCTTGAAAAATAAAATTCAAATCTC  
[A, G]

FIGURE 3Y



Attorney Docket No. CL001163  
Application Serial No. 09/804,472  
Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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AAAGGCCCTATATAATTTTGGTGTGGAAATTTACTTGTCAATGAAATGACTATTTACA  
CAAATTATAAGCTTCCATATTAATATATATGTGTGTGAACCTGAAATTCAAATTTTATTA  
TATTGTTTATGAAAGGTACAGCCTCTGAGATTCATCAGATGGTATTTACCTTTAGGGCAT  
ATCTAAAAATAAAATACAGTACATGAAATCCAGTGCTTTAATCCAGTGATTCTTAACTT  
TTTGCTCTCAGATCCCCTTTAACTCTTAAAGATATTGAAGAGCTCCAAGGAGGCTTG  
(SEQ ID NO:57)

29948 GACTCTACCAATGGGATCGGAGCTCTCCAAACCTGCATATTAAAGGCCTATAAGTTTGT  
GGGGTCCCTTTGTCCACATGATTATCTGTAATACATTGTATTTATGGACATGGTATTA  
TTATACACAGATCCTGTCTTTTAAAGAACATTATAATCCACTTAACTGCTAGGACCAGAG  
AATGACCGATAATTCAAACCATATTGTCTTACAGAAGACATATATAAAAGATGGTTATGT  
GTACCAATTGAGGTTCAAATTTGATTCAATTTAAACAATCTAGGCCAGATTTTATATAG  
[T,A]  
TTGTGGACCTTTGCACTCAAATCTCAAGGTTCTTATTAATGCAGATCTTGGCTGGGC  
ACGGTGGCTCACACCTGTAATCCCAGCACTTTGGGAGCCCAAGGCAGGTAGATCATTGTA  
GCTCAGAAGTTCAAGACCAGTCTGGCCAACATAGCGAGGCCAGTCTCATTGAAAGAAAA  
AAAATTTTAAATAAAAAATAAAAGCAGATCTTGGGTAAAGACATGTAGTCTGGTTTACA  
GGTATTAACAACCTGTCTGTAATGTAGTGATTTTGCTCCAGACTTACCTTTTCCATTATTT  
(SEQ ID NO:58)

33579 TTACTGTGAAGGCTGATTTTTTTTTTCTCTCACCCTAATTTAACACATGACTAGGCAAA  
TTTTAGACTATTTAGTTAAACATCAAGAGCCTGGAAGAAGTATCTTGTGACCTAATGTT  
CTTTGACGGGTAGTTGTTACTTTGCTGTTATGACCTGAATTTTTTTTTTTGAGACTG  
AGTCTGTGCTGTGCGCCAGACTGGAGTGCAGTGGCGCAATCTCAGCTCACTGCAACCTC  
TGCCTCCCAGGCTCAAGCAATTCCTGTGTCTCAGCCTCCTGAGGAGTTGCGATTGCAGGC  
[A,C]  
CCTGTACCATGCCCTGCTAATTTTTGCATTTTTTTGTTTGTTTTTTTTTTTAGTAGAG  
ATGGGGTTTACCCTGTTGGCCAGGCTGGTCTCAAACCTCAAGTATCAGCTGATCAGCCG  
CCTCAGCCTCCCAAAGTGTGGGATTACAGGTGTGAGCCACCACAGTGGCTATGACCT  
GATTTTGATTCACTTTTATAATTACCTTTTGATTAGATAAGTTAATTATCTTGA  
ATTTGGCCATTTTATGCTTTGAGAAAGTAGTTAATCACAGTGGGTCAACAGTACAACTT  
(SEQ ID NO:59)

40762 ATCCATCACCTCAAGCATTTATCCCTTGTGTTACAAACAATCCAATTACACTCTTAATTA  
TTTTAAGTGATCAATTAATTAATTAATAGTTCAAAGACTTCTTCATTCATGACTAG  
CACCTAGGCTAAAAAATTAGACACCTGGGCTCCTGGGATCAATCACGCATACCTGTGTC  
TCTTGTGCTCACTCCC  
[G,A]  
CTGTCTCTCTCTCTTCTCTCGCTTCCCTTTTCTCTCTCTGTGGTTTTCTAGGGTGG  
TGGCCTCAGGGAATTGGATTTCTTATATTATAGCTCAGGATTCCCAAGAGGGCTGTTTTT  
AATGTAGCCAAAGAAGTCTTGACGCTGACTTGTTTTATTCTATTCAATTGAGGTAGTCAC  
AGAGGCCCCGACCACAT  
(SEQ ID NO:60)

40936 TACAATTAAATTATTGAATATAGTTCAAAGACTTCTTCATTCATGACTAGCACCTAGGCT  
AAAAAATTAGACACCTGGGCTCCTGGGATCAATCACGCATACCTGTGTCTCTGTGCTC  
ACTCCCGCTGTCTCTCTCTCTCTCTCTCGCTTCCCTTTTCTCTCTCTGTGGTTTTCT  
AGGGTGGTGGCCTCAGGGAATTGGATTTCTTATATTATAGCTCAGGATTCCCAAGAGGGC  
TGTTTTTAATGTAGCCAAAGAAGTCTTGACGCTGACTTGTTTTATTCTATTCAATTGAGG  
[T,C]  
AGTCACAGAGGCCCGACCACATTCAGAGGAGGGACATACACTTGTGCGGACAAGTGAAG  
AGAATTCATGATCATGTTTTAAACCACTTTTATTAGTTTCTATGCTGCTGTAATAAA  
TTACCACAACCTAATGGCTTAAAGCCACACAAATTAATATCTTACAGTTCTGCAATC  
AAAAGTCTGAAACGATCTCACTGTGCTAAAATTAAGGTGTTTCGTAGGGCATTCTGGAGG  
CTGTAGGAGAGATCTTGTTTTTTGCCTTTTCTGGCTATTAAAGCTGCCAGCATTCCTT  
(SEQ ID NO:61)

45998 TGTATATCAGTCAAAATATTGGGCAACTCTGATAAGTTGTCCACTTAACATTGTACCAC  
TTAAGATGAATAGCATCTACCATTTCGGTCATTGTAAATATATAGGAGGACATAATCAC  
ATAATCTTGAAGTAAAGACAGTGCTTAAACTGAATCAGTTAAGTTTTATGAAAAATAC  
TTCATATTGTACTTTTAAAAATATATATTTTTTAAATTCATAGCTTTTGGGTTACAAGT

FIGURE 3Z



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GGTTTTGGTTACGTGGATGAATTCTATAATGGTGAAGTCTAAGATTTTACTGCAACTGTC  
[A, G]  
CCCAAGTAGTATATATTGTATCCAGCATATTGTCCTTTTTTTTTTCTTTTTTTTTTTTCA  
TTTCACCATGGACTAATGAAAATTTGTTAGGGACTGACATTAGGGCACCTTGAGCTAC  
CTTGAGCTAAAGGAAATAACCTTTGAATTTTTTCTGTTGGCCTAGAGAATGTGGTTTG  
TTTTGTAAGTGAATTCATGGGATTGTTAAGGTACAAGATTTTGCTTTAGTTTTATTGTA  
CTAGGATTTTGCTATATTAATACAATGTGAAAAGAATCAAAAGTGTAGAAATAAATGCA  
(SEQ ID NO:62)

47771 GAAGAGTAGAACATGAGGCTTTATTTAAAGATTAGCAGAATTTAAGGAAAAGGTGACTT  
TGTTGAAGATTATAATGTGAAGACAAAGGAACGAGGATGGGAATAAATTTGTATTCATG  
AGGCTTTGAAGAAATGACTCTAGAGAGTATATTTGGGTACTTTGGGAAATGAAGTTG  
GATTAGTGAGAAGGAACAGATTATGAAAAGACAAGAAACCTGATTAATGTCAGGATGATT  
TTATATTTGAAG  
[T, C]  
TGGTCAGATTTATGGCAGTCCTGGCTTTGCCATTTTGTAGTTTGATGACTTTGAGAAAAGTT  
CCTTCTTGAAGTTTAAATTTTCTGTATATAAAAAGTAATAACACCTGGTGATCTGCTAGG  
TTTGTTTTGAAGATTATATGAGATAAAATGCATGCAAACTGTTATAATAGTGCCTGGTA  
AAATAAGTGCCTAGTTTAAAAACAAGTCTTTGTAACTGCTTAGGACATGCCTGGTATA  
GGGTAGGTATGT  
(SEQ ID NO:63)

48117 GACTTTGAGAAAGTTCCTTCTTGAAGTTTAAATTTTCTGTATATAAAAAGTAATAACACC  
TGGTGATCTGCTAGGTTTGTGTTGAGGATTATATGAGATAAAATGCATGCAAACTGTTA  
TAATAGTGCCTGGTAAAATAAGTGCCTAGTTTAAAAACAAGTCTTTGTAACTGCTTAG  
GACATGCCTGGTATAGGGTAGGTATGTAATACATAGTAGGTAGGATCTGTCTCCTTGCTA  
TTTTTAGGTAAAAAACAAGGAAGAGCTTCAGCTTAATACAGTATGAACTGACGAGCC  
[C, T]  
TGGTAGGTTTTTGTAGCAAAAGAGCAACACAGTAAAGTAGTACTTAGGAAAGATTAAACAA  
GGGAACATGGCTTATACAGTGGTAATGGGGCCTGGAGTCAAGGAGGTAAAGATAAAATGGT  
ATTATAATTAAGGAATAGCCAGGACGATGGCACATGCATGTAATGCCAGCTACTGGAGA  
GGCTGAGGTGGGAGGATCATGGGAGTCCAGGAGTTTGAGACCAGCCTGGGCAACTGAGTG  
AGACCCCAATCCTAAAAAATACAAAGTAAAAAAGGAATAAAGTCATGAGGGCTTGGACT  
(SEQ ID NO:64)

54563 GCTTTGTACCCAGGCTGGAGTGTGGTGGTATGATCATGGCTGACTGCAGCCCTGACCTT  
CCGGGCTCAAGTGATCTTCCACCTCAGCCTCCCAATTACTTGGGACCACCAGCATGCTT  
GGCCGATTTTTTTTTTTTTTTTTTTTGTAGAAGCAAGGTTTCCCTATGTTGCCAAGGC  
TGGTCTTGAACCTTAGGGCTCATGTGATACTCCTGCCTCGGCCTCCCAAAGTGTTAGGAT  
TACAAGCCTGAGCCACCATGGCCGGCCAAAATATTTTCACTATAACAAATATCATATCTG  
[T, G]  
ATATACTCAGTTTAAATACTAACTCAAAGTAGAAACATAAAGCTGAATGACTATTTTATT  
TTCAGATTCTCTCCATTGAGTTTCCTTCTCCGTCTGTGTGATCTCTGAACTTTTCTCCA  
TCTTTGCCACTTCTGTCTAGCATTTTTTTTTTTATCAGCAGTTTCATTGAGTTTTTTTT  
TTAGTTCTTTCAACGGTGGAGTGAAGTAGGCAGCAGGACAGAAGAACTTGAAGCAGAGC  
ACACTGGAGAGGAGAAATTAACAAAGCCTTTATGAATAAAACAACCCCCCAATATCAGTC  
(SEQ ID NO:65)

58735 TGGGTTATGCCCTGTAACTCTTACATCATTAGTTTTTAGCCCCAAAAGGAAACAGCAAAT  
AATGTTTTATATGAGCCACATTTTGCCTGATTTTCCCTTCCACTCTGTAAATTAATAA  
GCAGACTCTGACTTTATTATGCTCAAATCGCTCTCTCCATTAAATGTGTGTTTCTCCAT  
CTTTTAGGGTTTTTACTTTATAAATACAGAGATTACTGTGTAAAATTCTAAATTTGCCAC  
TGGGTCGTTATACATTTGTAACCTTCTCACAGTATATTTTGTGATTTGGCAGAGTTTAC  
[C, T]  
AATATAGATGATACTAACTGAAATTAATCATTCTGTATAATTGGATAGAAAAGCATGAGT  
AGAATTTCAATTGGTATTATATTTAATTAATTGCCAAGATTTTCACATTTCTGACTACA  
ACAATAAAATCAAATGAATTGATGGCTTAAAAAAGAAATCTCAAATGTTTAGTCAATG  
AAGAACATCTATTGAATGAGTGAATGTTTATTATATAGTGCAATTTCTGAGCTTTTTT  
GGAGGGGAAGTTGCTCCCATGCTCTGAGAATTTTAAAGGATCGATACATTATTTTAAAC  
(SEQ ID NO:66)

FIGURE 3AA



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GTTTATATTGCCACATTAATTTCCATTATAAAACCAGTAACCATAGTTTGTGTTTAAATTA  
GCAATCTAATTATTTTCATGTATCCTCATTATGAGAATTTATGTCCATCACTTTGCTTGA  
TGTGATAACAGTGACATGCTAAATGAGAAACAATTGTTATTTAGAAAAAATGCACAAAG  
TGAAAGTCCTTTTAAATCCCTAATCATAAATACATTTTATTAGCTTACTTTAAGAAGTGGC  
AGTCACAGCTCCTGAACATTAGGGAGTGTTCCTTTTGGTCAGCATTATTTATTAGTGCA  
[C, A]  
ATTGCCTTTAATTTTAAATTTGAAATTATAGTAAATCCACGGGAGTTTTTAAGTCTCCTC  
ACAGCCTTTTGTCTACCTTTTCACCAAGGTAGATCCAGATGATAACTGCTGTGTTGTGACA  
TCATAGAAATTAGAAAAATATTTTCTCTGAGGAAAGAACATTGTAATGAAACTCTACA  
TATCAGAGGTCTATAGCTATGTATCAATATTAAGTTTCTTTTGTACTTTGCTTTGTAGTC  
ATCTTCATTCCAACTTTCATAATTATATTTTACTTTAAAAAGAAAAATAACCCACCA  
(SEQ ID NO:67)

61638 AAAAAAGGAAAACATTGATAAGTGTCTAGAACTTGGATTCTTTTATAGATTGTTCT  
TGGGGCTCTGATGTTTGGGATTGACGTTCTGTGCTGACCATTTTATATGCATTTTATCTT  
AATAGTATGTGCTTTTCATGAAGATTCTGATACAAGTGGGCAATCCTTAAATTATCTTTGA  
AAAAATTGGTTAATTTTGGTTAAAAAAGGGAAAGTGGCTGGGTGCAGTGGCTCACGCCTGT  
AATCCCGAGCACTTTGGGAGGCCGGGACGGGTGGATCACAAGGTCAGGAGTTGAAGCCCA  
[G, T]  
TCTGGCCAACATGGTGAAACCTGTCTCTACTGAAAATAATTGGGGCATGGTGGCACATG  
CCTGTAATCCAGCTACTTGGGAAGCTGAGGCAGGAGAATTGCTTGAACCGGGGACCCAG  
GAGGCGGAGGTTGCAGTGAGCTGAGATCGCGCCACTGCACTCCAGCCTGGGCTACAGAGC  
GAGACTCTGTCTCAAAAAATAAATAAATAAATAAATAAAGAGAAAAATATTGAGAGGA  
TTTGGTCATCATTTTACTGCTCTCTTCATGTGATGGAAATCAATTTTCTTCTCAATGG  
(SEQ ID NO:68)

63291 GAGATGTACTGTGATTTTACTGAGGTTTCATCACAAGAAGGGAGTGTTTCTGTGCCATT  
AACCATGTAGTTTGTACCATCACTAAATGCTTGGAACAGTACACATGCACCACAACAAAG  
GCTCATCAACAGGTAAAGTCTCGAAGGAAGCGAGAACGAAATCTCTCATTGTGTGCCGT  
GTGGCTCAAAACCGAAAAACAATGAAGCTTGGTTTAAAGGATAAAGTTTCTTTTGT  
TTCTCTCAGACTTTATGGATAATGTGACCGGCTTATGCAAATTTCTATTCTAAAA  
[G, C]  
TACTACTATGATATACAAGTGCTGTTGAGCATAATTAAATAAAATGCTGCTGCTTTGACA  
GTAAAGAGAAGGAAGTATTCTGATTAGCTGTATCTGGTATTAATTGCATGTTAAACACT  
GGAAATTTTAAATTTGAAATTAGATCAGTCATTCTTTCTTTCTCAAGATATCTCATGG  
CTGACACTGAAGAAGAAATGTAATTCATAACTTGCACTAAATGTATATTTTTTTCTTAA  
AAATTTACCATTCTTATTTATATTTTATGGATTAAAAATTTATAAAATACAGATCAGTTA  
(SEQ ID NO:69)

63463 TGTGCCGTGTGGCTCAAAACCGAAAAACAATGAAGCTTGGTTTAAAGGATAAAGTTTCT  
TTTTTGTTTTCTCTCAGACTTTATGGATAATGTGACCGGCTTATGCAAATTTCTAT  
TTCTAAACTACTACTATGATATACAAGTGCTGTTGAGCATAATTAAATAAAATGCTGCT  
GCTTTGACAGTAAAGAGAAGGAAGTATTCTGATTAGCTGTATCTGGTATTAATTGCATGT  
TAAACACTGGAATTTTAAATTTGAAATTAGATCAGTCATTCTTTCTTTCTCAAGAT  
[A, G]  
TCTCATGGCTGCACTGAAGAAGAAATGTAATTCATAACTTGCACTAAATGTATATTTTT  
TTTCTTAAAAATTTACCATTCTTATTTATATTTTTATGGATTAAAAATTTATAAAATACAG  
ATCAGTTAATATTGCACTTAAGTAATTTTACCTTTTAAATGTGATTTTATAGAATAATT  
CAGACTTACAAATACAGAGATATGAACAAAGTTTACAGTGGGAACAAAGGTTTAAAAAAA  
GGTTGTGGTTCTCTCTGTGATCCAGTGTGCACATAAACCTTTCTCTGATCTTCTACTG  
(SEQ ID NO:70)

63636 TGCTGCTGCTTTGACAGTAAAGAGAAGGAAGTATTCTGATTAGCTGTATCTGGTATTAAT  
TGCATGTTAAACACTGGAATTTTAAATTTGAAATTAGATCAGTCATTCTTTCTTTTC  
TCAAGATATCTCATGGCTGCACTGAAGAAGAAATGTAATTCATAACTTGCACTAAATGT  
ATATTTTTTTCTTAAAAATTTACCATTCTTATTTATATTTTTATGGATTAAAAATTTATA  
AAATACAGATCAGTTAATATTGCACTTAAGTAATTTTACCTTTTAAATGTGATTTTATA  
[G, A]  
AATAATTCAGACTTACAAATACAGAGATATGAACAAAGTTTACAGTGGGAACAAAGGTTT  
AAAAAAGGTTGTGGTTCTCTCTCTGTGATCCAGTGTGCACATAAACCTTTCTCTGATCT  
TTCACTGCCATCTCTGGATTATGTCTTCTGACCTGTCCATTTTGACCCATTAACTGGAA

FIGURE 3BB



Attorney Docket No. CL001163

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Inventors: Wei SHAO et al.

Title: ISOLATED HUMAN TRANSPORTER PROTEINS...

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AGTTGAAAACTACATTAACTGGAAAGTTGAAAACTACATTACTTTGGAGAATAAAACC  
GAAAGTTCGTGTATACCTTCTTAAAAAAAATCAAACCAAAAATGTGAAAACAATAGAA  
(SEQ ID NO:71)

63998

AAAAAAGGTTGTGGTTCTCTCTCTGTGATCCAGTGTGCACATAAACCTTTCTCTGATCTT  
TCACTGCCATCCTCTGGATTATGTCTTCTGACCTGTCCATTTTGACCCATTAAGTGGAAA  
GTTGAAAACTACATTAACTGGAAAGTTGAAAACTACATTACTTTGGAGAATAAAACCG  
AAAGTTCGTGTATACCTTCTTAAAAAAAATCAAACCAAAAATGTGAAAACAATAGAAT  
TGCAAAGATAGCAGTTAAAATTTTAATCTGAAAATAACCTTTGAATCTCGGGCTAGGTTA  
[T,C]  
GTCCATATTTGAAGTGGTCAGTGATGGTTTGAACATTTTTCAGGATGAGTTAAAATGC  
ACTGGATTATATTTGGGATTTTGTGTTTGGGAATTGTCTGTTTTAATCACAGCCTTAATT  
CACAAATTGGCAAAGGCAGTTTACTCAAAGGACTGGGCTAAATATTCTGTAATTATGCATT  
TTTGATAGGAAAATGAAATTTTGCAAACAGACATTTCTTTTTTTTGGCTGGAGTGCA  
GTGGGGCATGGTCTTGGCTCACTGCAGCGTTGACCACCTGGGCTCAAGTGATACTCCCGC  
(SEQ ID NO:72)

FIGURE 3CC